MONTANA DNRC

OIT
Office of Information Technology

Strategic Plan 2018 - 2020

Table of Contents

Letter From the CIO

Kreh Germaine

Industries across the globe no longer rely on IT services to support the business of the organization…they integrate IT into the business of the organization to drive organizational success. Indeed, IT is the significant driver by which the greatest efficiencies and impacts of an organization are made, because this is how the vast amount of customers and citizens are engaging their daily lives.

My over-arching goal for this Strategic Plan is to align the efforts of the Office of Information Technology with the business goals of the department's programs. To that end I have constantly challenged our team to provide IT-driven business solutions that promote the success of DNRC staff in serving the citizens of Montana through natural resource management. It is paramount for us to mature OIT's service posture and to ensure our objectives provide meaningful impact to the organization. For me, DNRC is one of the most rewarding means of serving Montana, and I have truly enjoyed working alongside of our staff across the state, from the timber stands of the northwest to the creek bottoms of the east.

Thank you for allowing me and the Office of Information Technology the opportunity to serve with you and to achieve these goals together. I hope you are able to recognize this effort both in this strategic plan and in our daily activities throughout the years ahead.

Kreh Germaine
Chief Information Officer, DNRC

Executive Summary

It is time for a new approach to strategic planning when it comes to technology at the Department of Natural Resources and Conservation. The best strategic plans will be designed to propel the business toward success in its mission, and for state government, this is no different. The Department's Office of Information Technology wants to develop a plan that identifies each division's primary business goals and objectives, and then align OIT's endeavors as a business partner to support the success of those priorities, thereby furthering the mission of DNRC.

To accomplish this goal, in the fall of 2017 the OIT leveraged our membership with *Info-Tech,* a leading research and advisory company focused upon IT professionals, to help guide us in a plan to develop a more meaningful strategy. This was a significant departure from how we operated in the past, and changing the culture of how we think about strategic planning was not easy; but I can say it has truly been worth it, as we have a strong path for success now laid before us.

To summarize our effort, we met with leadership staff and stakeholders across the organization. We pushed the conversation to capture each division's business goals for the next biennium. We conducted a strategic alignment survey with the Director and Chief of Staff to match the objectives we were formulating with their goals for the organization. We conducted numerous meetings and strategic planning sessions to organize all the information we were gathering. We then conducted follow-up discussions to ensure we were capturing information correctly.

Finally, we synthesized all the business drivers we were able to capture into common themes, and slowly the strategic initiatives started to emerge. The exciting result of this new planning effort are the five strategic initiative categories presented in this plan: *Customer Service, Application and Business Management, Infrastructure, Geospatial Integration*, and assurance for *Continuity of Operations*. Each stakeholder that shares our mission to serve Montana through natural resource management will recognize business drivers significant to them in this plan, and see how these initiatives are designed to help meet those needs.

The plan is intended to be a fluid and actively utilized document for OIT and the organization. The information technology industry changes too rapidly to plan detailed action items very far in advance, and our expectation is that priorities will change each year as new challenges arise and new technologies and tools become available. We welcome new efficiencies and better ways of serving Montana, and adapting this plan to meet those challenges is one we look forward to. By partnering together with the department's programs and integrating with enterprise services from the State Information Technology Services Division, we can see these plans become an effective reality.

A biennial IT strategic plan is statutorily required of the department [MCA 2-17-523]. This document is intended to satisfy that requirement.

OIT Mission, Vision & Values

Mission of the Office of Information Technology

The Director's Office of Information Technology carries out the department's mission and statutory responsibilities by administering, managing, planning, and evaluating agency functions in the realm of Information Technology.

Vision of the Office of Information Technology

To be a leader in providing superior and innovative information technology solutions that promote program success.

OIT Core Values

CORE VALUES

PROFESSIONALISM. INNOVATION. PARTNERSHIP. SERVICE

Mission of the Department

To help ensure that Montana's land and water resources provide benefits for present and future generations.

Montana's constitution preamble states "We the people of Montana grateful to God for the quiet beauty of our state, the grandeur of our mountains, the vastness of our rolling plains, and desiring to improve the quality of life, equality of opportunity and to secure the blessings of liberty for this and future generations do ordain and establish this constitution." These expressed values are represented in the Department's mission and underlie all the programs and projects we work on every day.

Department Programs

Forestry

The Forestry Division promotes responsible and proactive stewardship of Montana's forests and rural lands. The programs help private landowners manage their forested lands, and help cities and towns develop vibrant parks, boulevards and natural areas. Staff respond to wildfires, insect pests and diseases, and advocate for sustainable forest management practices on private, state, tribal and federal forestlands. The DNRC forestry division values Montana's integrated forest industry and its social, economic and environmental benefits. The division is headquartered in Missoula and consists of 3 Bureaus – Fire and Aviation Management, Forestry Assistance, and Business Management – and 19 Field Offices.

Business Goals:

- Have a single application/interface that would allow the FOR to be able to easily see how funding was allocated, what was the return on investment of funding and identify funding issues.
- Have a regular assessment and meeting to review how resources from Office of Information Technology (OIT) is meeting Forestry needs.
- Have standardized procedures, processes and solutions to archive digital media for long term storage and retrieval.
- Ensure that Forestry headquarters and field offices have enough network wired and wireless bandwidth to fully utilize the state, federal and commercial hosted applications.
- Roll out an integrated suite of software that will allow for personnel across the state to manage wild firefighting resources and provide a near real-time status to the appropriate stake holders. This includes a public facing interface to help citizens understand how wild fires will impact them.
- Ensure the Forestry firefighting personnel have the appropriate geographic information systems (GIS) resources during fire season.

- Ensure that Forestry's mission critical software applications fully supported by vendors and will run on the IT infrastructure of DNRC.
- Improve on the capability of citizens to engage a forester and provide Forestry the capability to capture information about citizen engagements in the forester program.

Trust Lands

The Trust Lands Management Division (TLMD) manages the State of Montana's trust land resources to produce revenues for the trust beneficiaries while considering environmental factors and protecting the future income-generating capacity of the land. These lands and the revenues from their management are specifically set aside to provide income for the State's educational institutions. The division consists of 4 Bureaus – Real Estate Management, Forest Management, Agriculture and Grazing Management, and Minerals Management. Each of the four bureaus of the TLMD manages a different aspect of these parcels, but they all are tasked with making the most efficient use of the land and resources on or under that land to provide the largest possible return for the trust beneficiaries.

Business Goals:

- Improve organizational capability to increase revenues through better data-driven management decisions and workflows.
- Streamline data collection from field to file to better document land activities and revenue potential.
- Develop effective customer service through digital payment processing for citizen lessees.
- Achieve a revenue target rate of return of 3%.

Water Resources

The Water Resources Division carries out its duties for the purpose of promoting the general welfare and prosperity of the people of Montana. Sound coordination of the development and utilization of the state's waters allows the Division to protect existing uses and to promote adequate future supplies for domestic, industrial, agricultural, recreation, the conservation of water for wildlife, aquatic life and other beneficial uses.

The Water Resources Division is responsible for managing Montana's water for the present and future needs of its people through the State Water Plan. The division compiles accurate, up-to-date stream flow data from more than 90 monitoring gages, providing critical data for managing reservoirs, irrigation schedules, water rights permitting and adjudication, floodplain management and other services for farmers, ranchers, citizens and communities. DNRC also manages the operation and maintenance of 24 state-owned dams and 250 miles of irrigation canals. The division consists of five Bureaus – Water Adjudication, Water Rights, Water Operations, State Water Projects, and Water Management – and eight Regional/Unit Offices.

Business Goals:

- Promote the wise use and conservation of Montana's water resources

- Process all water right forms as efficiently as possible while ensuring that they comply with the criteria and processes established in statute and rule. Scan and maintain all water right records as required by the Montana Constitution.
- Issue summary reports of water right claims in all first decree basins to meet the current legislative requirement of having all initial decrees issued by June 30, 2020. Continue to provide post decree assistance to the Water Court across the state and initiate limited examination work on approximately 90,000 claims in 43 basins pursuant to the Water Court's re-examination order.
- Manage and maintain state-owned water storage projects (24 dams including the Broadwater-Toston hydropower facility and 250 miles of canals) to maximize economic and water use benefits to agricultural producers and communities while ensuring these high hazard projects are maintained to current engineering standards and compliant with the State Dam Safety Act.
- Provide unbiased technical assistance, water resource planning support, and water resource educational information to water users and decision makers throughout the state. Implement recommendations in the 2015 State Water Plan. Provide technical and legal support for implementation of previously approved water compacts.
- Efficiently and effectively carry out the statutory duties of the department for regulation of high hazard dams, construction requirements of water wells, licensing of water well.

- Provide better services to citizens and DNRC's programs by developing and utilizing IT services that are integrated between DNRC (Water Rights Bureau, Water Adjudication Bureau) and the Judicial Branch (Water and District Courts).

Conservation and Resource Development

The Conservation and Resource Development Division (CARDD) provides technical and financial assistance to local governments, state agencies and private citizens for conservation, development, protection and management of the state's natural resources. The division provides extensive support to the state's 58 Conservation Districts, set up under state law and responsible for the management of natural resources within their boundaries. The division also manages a significant number of resource development programs including renewable resource grants and loans, reclamation and development grants, regional water coordination assistance, conservation district water reservations, and drinking water and waste water systems. The division consists of three bureaus - Conservation Districts, Resource Development, and Financial Management and 6 Administrative Attachments – Montana Sage Grouse Habitat Conservation Program, Montana Invasive Species Council, Flathead Basin Commission, Upper Columbia Conservation Commission, Rangeland Resource Committee and Montana Grass Commission.

Business Goals:

Continually improve community access to CARDD's technical and financial resources for their natural resource related projects through enhanced IT solutions.

Develop Collaborative Information Systems that allows interactive access to projects, documents, etc. for all stakeholders (agency staff, business partners, citizens, etc.) to maximize program impact while minimizing overall costs and resources required.

- Develop effective Sage Grouse habitat conservation tools and compensatory mitigation systems to achieve statutory objectives and requirements.
- Ensure program staff have adequate training to use the software and applications that drive our business.
- Increase effective Stakeholder/Collaborator outreach through various media such as online video, live stream webinars, etc.
- Achieve efficiencies with an integration of financial business systems toward a common operating platform for the entire agency.
- Increase positive Public Relations outreach to effectively communicate the wealth of past, present and future conservation efforts and the value provided by the program.

Director's Office

The Director's Office carries out the department's mission and statutory responsibilities by administering, managing, planning, and evaluating agency functions in the areas of fiscal operations, human resources, information technology, legal initiatives, safety, and public information, under the guidance of the director.

Business Goals:

- Provide leadership to the department in achieving its mission to serve the citizens through effective natural resource management.
- Provide clear legislative intent for the department's programs.
- Superior delivery of core central services that promote the success of the programs while meeting the departmental requirements for compliance with administrative rules.
- Facilitate the department's navigation through the biennial legislative session for the appropriation and effective expenditure of funds to meet the mission of the agency.

Montana Board of Oil & Gas Conservation

The Montana Board of Oil & Gas Conservation (MBOGC) is a quasi-judicial body that is attached to the DNRC for administrative purposes only.

Business Goals:

- Protect citizens and the environment from the impacts of oil and gas activities.
- Identify projects and hire contractors for remediation efforts.
- Inspect oil and gas wells and operations to ensure compliance with state environmental laws.

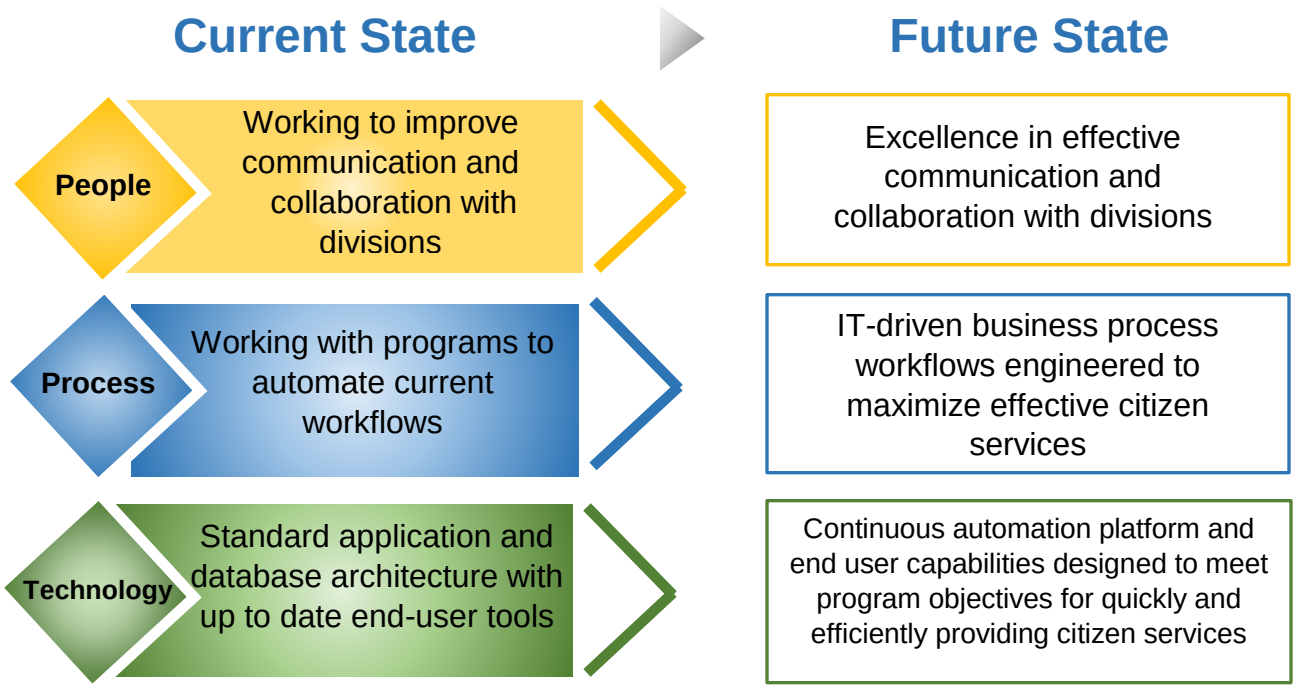
Current State of IT; Target State of IT

Current State of Information Technology

A recent article in the *Wall Street Journal* identified that IT-driven business processes have gone through three distinct phases: process automation, process reengineering, and now integrated management transformation. Through a business satisfaction survey conducted by the Office of Information Technology in 2016, the IT service maturity level of DNRC was at the base level of providing reliable infrastructure and service support, but not at a level of optimizing the business. This in part is due to inadequate IT resources dedicated to an agency of 550-plus full-time personnel, and in part due to the lack of business vision to drive business process transformation by leveraging IT. Consequently, DNRC's IT-driven business processes have been stuck at the first phase of the automation of existing business processes, with a number of departmental programs still preferring paper forms over digital workflows.

Target State of Information Technology

The time has come for the Department of Natural Resources and Conservation to mature to the phase of process reengineering, where the business programs reengineer their IT-driven business process workflows to improve their effectiveness in serving the citizens. The Office of Information Technology has been working these past two years to see this goal achieved, first by automating workflows where achievable and now by driving reengineering discussions. By leveraging third-party business analysis experts, the OIT has helped both the Water Resources Division and the Trust Lands Management Division to embark on the design and build of new business management systems with this goal in mind. Looking ahead, the Office of Information Technology strives to deliver services and innovations that optimize the business of the department's programs, fostering the effective execution of technology related business projects and integrating new technologies to enable a higher level of program effectiveness in carrying out the mission of the agency.



Key Strategic Initiatives

The Office of Information Technology worked diligently with our stakeholders to identify core business drivers across the organization. These were then synthesized into the following key strategic initiatives for IT in order to successfully support the business in the next biennium.

Customer Service

Creating a culture of excellence through professionalism, partnership, and visionary service

The use of technology is an essential requirement for departmental staff to accomplish their work duties in this day and age. In order to effectively utilize technology, high-quality customer service is a core component of improving and optimizing agency business processes. Through optimized business processes, DNRC staff will best serve the citizens of Montana. The Office of Information Technology has four main areas targeted to improve customer service: culture, communication, tools, and training.

Culture

OIT staff strive to create a culture of excellence by espousing the core values of professionalism, partnership, and visionary service as they pursue the goal of enabling each employee to maximize their productivity by leveraging IT tools and service offerings. End-user productivity is the ultimate goal of OIT staff, and OIT efforts are to ensure each person is able to leverage technology to do their job daily.

Communication

The key to effective and sustainable partnerships across the organization is communication. OIT recognizes effective communication as a vital component of department success. Our team is committed to engaged listening and informed discussion, so personnel can plan and execute projects with the highest technological success. In conjunction with internal agency communication, DNRC needs to improve communication with constituents, partners, and program members through the technology channels the public is using today.

Technology Tools

The ability of technology to improve workflows and task execution is constantly changing, with new opportunities arriving each season. The OIT seeks to enable departmental staff to be positioned to leverage new technologies as quickly as they can be identified and delivered; our challenge is to do this while mitigating new risks and delivering secure solutions to common problems so that end users are continually empowered to achieve their greatness.

IT Training

The best culture, communication, and tools are largely ineffective if DNRC staff are not capable of employing the virtues of each to their respective organizational responsibilities. Too often IT staff have seen all their effort to deliver prime solutions have gone unused because proper training was not delivered to change the business culture through effective communication and employee knowledge how to utilize new tools. Staff training of technology that impacts their business operations must become a high priority across the organization.

Priority Goals:

Core Business Drivers Identified that this strategic initiative would meet
End User Productivity
Service
Collaboration
Improve Ticketing System
Improve Help Desk
IT Integrations with Business Operations
IT Training
eGovernment
Public Interface
Communication

1. Improved Ticketing System Services to the Department:

Objective 1: Achieve a more robust and intuitive ticketing system with the ability to leverage ticket workflows

Objective 2: Explore expansion of a ticketing system for all of the Directors Office to provide a consistent and intuitive tool that customers would utilize when requesting services from the Director's office. This would provide the Director's office the ability to identify areas of interest from customers, issues that are causing customers concern and identify topics that need to be addressed in a proactive manner to reduce problems.

2. Improve Technology Training Program

Objective 1: Develop a program for regular delivery of technology training to department staff.

Objective 2: Develop basic IT onboarding training for new employees.

3. Enhanced Collaboration and Communication

Objective 1: Identify and integrate optimal collaboration tool(s) according to program needs

Objective 2: Assist the organization in disseminating public information through effective communication platforms

4. Implement a codified methodology for providing professional services

Objective 1: Research, identify, and select a service methodology

Objective 2: Develop an implementation plan and start integrating service practices into OIT operational standards

Applications and Business Management

Improving the impact of IT in promoting program success

Essential to effective business operations across the organization are organized IT-driven business applications, data analytics, and process workflows. The OIT provides leadership in developing effective governance and business processes that guide effective application design, development, acquisition, and implementation standards to facilitate efficient program operations.

The department needs more than just solid IT tools to thrive in the world of increased demands and shrinking resources to provide services. Leveraging department data to drive better business decision capability within the programs is a critical capability that must be developed and incorporated into regular program workflows such that precious resources are not poorly applied to inefficient practices.

Governance & Leadership

Providing a structure for making sound decisions is healthy for any organization, and government is no exception. The OIT is leading by implementing a healthy governance framework for IT-driven business processes, starting with Geographic Information Systems. Next up will be mobile application design, followed by business data management and records management.

Application Enhancements & Design

Allowing business applications to fall into the category of 'legacy applications' is detrimental to the forward progress of the department. With the limited resources available in the OIT, legacy applications consume a disproportionate amount of available resources that prevents research and integration of new advantageous application enhancements. As a result, all programs are held back from achieving their potential due to the legacy applications of others. Replacing legacy applications is essential, and developing a business practice to allocate funding to keep systems current not only is a wise business practice by keeping maintenance costs low, it allows staff to focus on integrating new functionality faster, thus delivering a quicker return on investment to the programs and the citizens they serve.

Business Intelligence and Analysis

To excel at natural resource and conservation management in the next decade, the Department of Natural Resources and Conservation must learn to leverage the vast trove of data they have from the past several decades of service to the citizens. The OIT seeks to help the programs of DNRC see the value in digital management of their data with an eye to the future of how resource management will be conducted. With proper 'Big-data' style practices today, programs will be well positioned to make data-driven decisions that will produce improved management results for tomorrow.

Priority Goals:

Core Business Drivers Identified that this strategic initiative would meet
Operational Analysis
Business Intelligence (BI)
IT Procurement Process
Governance & Leadership
Digital Marketing
Core Applications
Decision Making
Business Analysis
Enterprise Financial System
Improve Workflow Efficiency
Cross Agency Data Sharing
Electronic Payment Processing

1. Facilitate a business analysis for major DNRC programs to guide the development of IT solutions and optimized workflows

Objective 1: Leverage the business analysis study for the Water Resources Division to continue the development phases of the new Water Rights Information System.

Objective 2: Leverage the business analysis study for the Trust Lands Management Division to procure and build a new Trust Lands Management System with its enhanced workflow designs.

Objective 3: Guide a business analysis project for other major DNRC divisions or programs.

2. Implement a stronger governance framework and associated practices for the department

Objective 1: Implement the new GIS governance framework such that programs are empowered to pursue successful implementations of GIS technology to aid their program objectives

Objective 2: Develop and deliver a mobile application governance framework that facilitates field staff operations

3. Develop a capability for data-driven business intelligence & analysis

Objective 1: Partner with experienced entities to utilize our data for driving business value to the organization and Montana

Objective 2: Develop the technical capability for programs to leverage business intelligence for ongoing operations

4. Enhance, Develop, or procure key business applications

Objective 1: Develop a Land Use Specialist Agriculture & Grazing mobile inspection application that streamlines data workflow from field to system

Objective 2: Develop the new professional performance review system (MAPP) and support its rollout to the department.

Objective 3: Procure or Develop a new enterprise financial system for all divisional programs

Objective 4: Support the development of the Sage Grouse Habitat Quantification Tool; a Fire financial tracking tool; the new Water Rights Information System; the new Trust Lands Management System; an improved Grant Tracking System; a new Oil & Gas system; and/or other key systems and mobile applications as identified by the Director or Leadership staff.

5. Enable electronic payment processing for key programs

Objective 1: Identify and integrate online payment processing for Trust Lands Management Division programs

Objective 2: Expand online payment processing to other divisions as feasible

Geospatial Integration

Leveraging spatial data and remotely sensed information to drive intelligent business operations

Spatially enabled data and remotely sensed information (RSI) have revolutionized natural resource management practices. This technology is continually advancing in both data quality and diversity. The integration of remotely sensed information with spatially-enabled business data will continue to drive resource efficiencies and program effectiveness in natural resource management.

The Office of Information Technology recognizes the continual need to incorporate spatial data and associated workflows into virtually all agency operations. The components for success in this realm are threefold: Geospatial Data Management, Data Acquisition and Distribution, and Emerging Spatial Data Technologies.

The OIT recommends continued development and optimization of enterprise resources to position the agency in effectively leveraging spatial data and remotely sensed information for intelligent program business operations. In June of 2017, the OIT procured the Department's first UAV (drone) with the goal of leading the department's programs in realizing the potential the technology has to significantly improve workflow efficiency and data-driven business decisions.

Priority Goals:

Core Business Drivers Identified that this strategic initiative would meet
Satellite Imagery
Unmanned Aerial Vehicles
Light Detection & Ranging
NAIP Imagery
Unmanned Submersible Vehicles
Budget & Resource Constraints

1. Geospatial Data Management

Objective 1: Optimize enterprise spatial data management standards to accommodate business systems integration for informed decision making.

Objective 2: Develop data migration paths to populate stand-alone or siloed datasets into an enterprise storage environment.

2. Data Acquisition and Distribution

Objective 1: Research, identify and select a unified platform for authoritative spatial data access and distribution to agency staff and external end users.

3. Emerging Spatial Data Technologies

Objective 1: Working with the Director's Office and agency program staff, develop the policy for UAV operations and data management.

Objective 2: Develop standard data acquisition workflows to integrate UAV data into program business operations.

Objective 3: Optimize mobile data collection platforms for accessibility and integration into current or future program workflows.

Continuity of Operations

Managing Risk to protect department operations and user data.

Ensuring program services are operating and citizen and staff data remains secure is a challenge that every organization must face. The threat of malware, ransomware, information theft, or loss of control of our systems and data continually increases as the world of random hacking has given way to organized cybercrime and rogue-state targeted attacks. The stakes at hand have never been higher as criminal cyber operations have become a multi-billion-dollar industry. Today this trend for financial gain has expanded into the ability to manipulate the populace to draft political power to the leadership of one's choosing. The ultimate victims are the very citizens that we so passionately serve.

At DNRC, ensuring operations are able to continue in the midst of such threats is led by two broad fronts: Cyber security to protect against such attacks, and cyber recovery to ensure the department can recover if security fails.

Security

OIT has a three-pronged approach to security: securing technical infrastructure, securing applications and data, and securing end-user activities. Each is a critical component to a comprehensive security program, and a weakness in any can bring disaster to the others. Of the three, the most commonly exploited venue to breaching our protection is through our end-users. These are the most susceptible to falling victim to the ever-improving clever mechanisms by which cyber attackers seek to gain a foothold within our department's defenses.

Disaster Recovery

Disasters can come in many forms, and for any business, a successful cyber-attack is truly a disaster, and even more so if data is stolen, held hostage or un-recoverable. The loss of control over one's data can result in a tremendous impact to users, citizens, and the organization. At the DNRC, a years' worth of data is well over 1.2 million hours of work, and the resulting value of such work to the citizens and the state of Montana is hundreds of millions of dollars. Consequently, the department needs to identify the correct balance between the value of risk mitigation and the expense of loss, and the OIT is working to guide this effort.

Finally, the continuity of operations is often seen as primarily a technical architecture. The best plans and architecture are meaningless without the essential staff who have the skills to manage it. Without funding regular training, competitive compensation, and a challenging but rewarding work environment, the best continuity plans will only be as good and reliable as those who orchestrate it.

Priority Goals:

Core Business Drivers Identified that this strategic initiative would meet
Security Applications & Data Disaster Recovery Infrastructure Management

1. Review and improve departmental disaster recovery architecture, plans, and procedures

Objective 1. Complete the ransomware event mitigation and response plan.

Objective 2. Conduct a table top exercise with the DNRC leadership to prepare them for a major cyber security/disaster recovery event.

Objective 3. Partner with the Office of the State CIO on a disaster recovery drill to test and improve the process and procedures for recovering departmental applications and data from a cyber event.

Objective 4: Identify and plan the migration to the best secure, reliable, and affordable systems environment available in accordance with the level of determined data value and State CIO approval.

2. Review and improve internal security architecture, plans, and procedures

Objective 1. Identify and document the critical processes and procedures that are needed regarding current cyber threats for malware, ransomware, and data corruption, or other threats as warranted.

Objective 2. Conduct a table top exercise with all OIT personnel to educate them on roles and responsibilities during a cyber security/disaster recovery event.

3. Provide targeted information to agency personnel to educate them on security best practices.

Objective 1. Enroll agency personnel in annual security training that is targeted based upon their position inside the organization and pertinent to a natural resource organization.

Objective 2. Provide regular information announcements to agency personnel to educate them on current security risks and steps they can take to mitigate these security risks.

Infrastructure

Ensuring computing resources are proficient and available

In order for department staff to maximize their impact for citizen services, they need to have computing resources ready and available to enable them to work to their full potential. By implementing state of the art technologies to deliver improved services and cost-effective solutions such as virtual computing, cloud-based technologies, increased data throughput, intuitive mobile applications, and digital data management, the OIT lays the foundation for program success.

Mobile Infrastructure

Technologies such as virtual desktops, mobile device platforms, and cloud based services allow DNRC staff to accomplish their work while on the move better than ever before. By continuing to adapt to improved platforms and mobile solutions and devices, staff improve their efficiency by having the information needed readily available while diminishing the time necessary to leverage new data to make decisions. This drastically shortens the workflow pipe from field to data system to intelligent business decision making.

Continuous Deployment

By using a continuous deployment model using application and database containerization technique, OIT staff can test and deploy modifications and updates in real time with minimal impact to users. This allows for increased system security and availability as applications can be killed and re-spawned across a continuous platform array. It allows for segregation and testing of various components in a production like scenario before rolling out to users, allowing a faster time to production of essential improvements and reducing risk to the organization.

Electronic Records Management

An area highlighted by numerous program staff is the need to digitize their records management systems so that the information may be readily available to decision makers across the organization both now and into the future. This improves staff efficiency, reduces physical storage needs, and can enable the public to quickly find program information with less reliance upon department staff. It also reduces the risk of record loss by allowing data to be redundantly stored instead of in a single physical location.

Priority Goals:

Core Business Drivers Identified that this strategic initiative would meet
Cost Savings Initiatives/Strategies
Deployment/Containerization SCCM
Network Bandwidth
Electronic Data Storage (ECM)
Cloud Environment
VDI
Field Data Collection & Support
Mobile Device Platform
Asset Tracking & Management

1. Mobilization Technologies

Objective 1. Pilot, train staff, and deploy virtual desktop infrastructure to improve service efficiency, security, and reduce computing costs

Objective 2. Increase mobile platform standards and utility across the organization

Objective 3. Continually work to provide sufficient network bandwidth for all program operations

2. Continuous Deployment

Objective 1. Identify and select a continuous automation platform; obtain needed staff training to implement

Objective 2. Publish key applications in the continuous deployment environment

3. Employ Digital Records Management

Objective 1. Optimize the enterprise content management solution for DNRC programs

Objective 2. Facilitate program migration to leverage digital records management

4. Leverage SaaS and Cloud-based solutions where optimal

Objective 1. Reduce need for OIT staff to manage platforms, instead putting resources into the integration of technology and program business solutions

Objective 2. Improve security posture through secure cloud environments and continuous deployment structures.

5. IT Resource asset tracking and management

Objective 1: Implement an effective IT asset and tracking solution to streamline delivery, service, and replacement of IT solutions

Funding Opportunities, Concerns & Constraints

Information Technology is often leaned upon to make up the difference in operational challenges across the globe. With the rapid pace of technological development, potential efficiencies and returns on investment are constantly arising, yet often require an initial investment in order to move ahead where those efficiencies can be realized. When that investment must be foregone, programs must rely upon aging systems that become costlier to maintain, hamper opportunities for streamlined workflows, and delay improvements to citizen services due to the legacy system's technological limitations.

Funding, therefore, is constantly a concern; and the judicial use of funds to achieve desired efficiencies and greater impact for dollars spent is constantly a goal of the Office of Information Technology on behalf of the department. The proposed objectives in this plan are no exception.

The Office of Information Technology has designed the objectives within these strategic initiatives largely with the assumption that the resources available are those already in existence within the department. The extent that the objectives can be developed, however, will be determined by the amount of resources that can actually be contributed to each objective. The combined constraint of overextended IT staff and limited IT project funding will force several of these objectives to be postponed indefinitely. The reality is that these resource challenges limit the application of technology to improve workflows and services, and will continually be a major inhibitor to government service improvement.

Major Project Initiatives

Item	Description
Project Name	Trust Lands Management System II (TLMS II)
Project/program purpose and objectives	The new Trust Lands Management System will be a business data management system for control and management of the Montana State Trust Lands. The new system will be a web-based land and fiscal management system having direct integration with GIS technologies and web-based information sources. The system will track data pertaining to the surface and subsurface resources and multiple uses of those resources on State Trust Lands to maximize revenues for the State Land Trust beneficiaries.
Estimated Start Date	August 2018
Estimated Cost	$2.5 Million
Funding Source 1	*Operations*
Funding Source 2	*TAC*
Funding Source 3	
Annual Costs upon completion	*Est $25,000*

Item	Description
Project Name	Water Rights Information System (WRIS)
Project/program purpose and objectives	The WRIS is a critical computer system that is used by the Department of Natural Resources and Conservation (DNRC), the Montana Water Court within the Judicial Branch, and the citizens of Montana as the authoritative source of digital information concerning water rights across the State of Montana. The WRIS is currently being supported by technology that was developed in the late 1990s and deployed at DNRC in the early 2000s. The technology is nearing its end of life from the vendor and the costs of continuing to use it are increasing every fiscal year. In order to support the Constitutionally-mandated record keeping system of the water rights of the citizens of the state, DNRC needs to upgrade the WRIS to a newer technology that will meet current and future business requirements, allow DNRC to move forward with its strategic information technology goals with the WRIS, and ensure that the WRIS lifecycle is sustainable for the future. The Water Resources Division (WRD) will also pursue development of an online system designed to simplify and improve the efficiency of the water measurement reporting process for both the public and department.
Estimated Start Date	Business Analysis and proof-of-concept pilot completed successfully. Imminent need to start on full upgrade project exists to meet needs and technology deprecation.
Estimated Cost	$3,970,730 through phase 3 not including internal personnel costs
Funding Source 1	*Water Rights Appropriation*
Funding Source 2	*General Fund*
Funding Source 3	
Annual Costs upon completion	*tbd; The project will take a couple years to completion. Design for the new system is more efficient to maintain than the current legacy solution.*

Item	Description
Project Name	Sage Grouse HQT (Habitat Quantification Tool)
Project/program purpose and objectives	The Montana Greater Sage Grouse Mitigation System Habitat Quantification Tool identifies the defined processes and information necessary to quantify gains and/or losses of greater sage grouse (*Centrocercus urophasianus*) habitat caused by development, and alternatively to estimate conservation benefits resulting from activities which restore, enhance, or preserve sage grouse habitat. These are expressed as functional acres gained or lost and an associated score. Entities engaged in the Montana Mitigation System are expected to apply these processes, methods, standards and criteria when creating, buying, or selling credits in Montana. This project is to take the designed technical manual and build a geospatial application that measures, tracks, and reports upon these measures and feeds the information back into the Density and Disturbance Calculation Tool now in use.
Estimated Start Date	HQT Technical manual has been released; HQT build scheduled for fall 2018.
Estimated Cost	$360,000-$500,000 estimated; RFP tentative for fall 2018
Funding Source 1	*HB2 Statutory*
Funding Source 2	*tbd*
Funding Source 3	*tbd*
Annual Costs upon completion	*tbd*

Agency Contact Information

Agency Director/Administrator	
Name	John Tubbs, Director
Phone Number	406-444-2704
Email Address	jtubbs@mt.gov
Mailing Address	P.O. Box 201601 Helena, MT 59620

Information Technology Contact	
Name	Kreh Germaine, Chief Information Officer
Phone Number	406-444-0575
Email Address	kgermaine@mt.gov
Mailing Address	P.O. Box 201601 Helena, MT 59620

Information Security Managers	
Name	Chris Kuntz / Casey Balcerzak
Phone Number	406-444-5756 / 406-444-1283
Email Address	ckuntz@mt.gov / casey.balcerzak@mt.gov
Mailing Address	P.O. Box 201601 Helena, MT 59620

Acknowledgements

Thank You

Director John Tubbs and Chief of Staff Kerry Davant for their leadership and executive support;

DNRC Leadership for their contributions and time researching key department business drivers;

OIT Managers Chris Kuntz, Brian Collins, John Adams and Casey Balcerzak for devoting resources to formulate these strategic initiatives;

Maura Gruber for designing and assembling the final report;

The Office of Information Technology team for implementing this plan and carrying out their service to the Department with such excellence; and ultimately,

The staff of the Department of Natural Resources and Conservation for their partnership in carrying out the mission of providing the benefits of Montana's natural resources to present and future generations. You make this such a rewarding work.

"Plans to protect air and water, wilderness and wildlife, are in fact plans to protect man."

- Stewart L. Udall

Appendix A

Integration with the State of Montana Enterprise Strategic Plan

Each State Department develops an IT Strategic Plan that is designed to best support operations that achieve the department's mission to serve the citizens of Montana. In addition, each department should work collaboratively with each other and the State CIO's office to pursue their business objectives in an organized manner that also supports enterprise efforts as outlined in the state strategic information technology plan developed by the State CIO. The DNRC IT Strategic Plan supports and conforms to the state strategic information technology plan of 2018-2020 as shown below.

Mission	The Director's Office of Information Technology carries out the department's mission and statutory responsibilities by administering, managing, planning, and evaluating agency functions in the realm of Information Technology.

Strategic Initiative 1. Customer Service

Customer Service is directly tied to the State Strategic Goals of *Capacity*, *Capability*, and *State-of-the-Art*, "that meet customer demand" and "that provide essential functionality for a diverse and engage customer base" (State Goals 4, 5, and 3). DNRC has recognized that developing a service management culture that excels in communication, leverages state-of-the-art tools, and provides effective training on how to use such tools is essential to the operations of an effective organization.

		State Strategic Plan Goal/Objective Reference	**Agency Goal/Objective Reference**
Initiative One	Customer Service	State Goals 3, 4, and 5	
Objective 1.1	Improve Ticketing System Services to the Department	State Objective 3.1	D.O. Goals 3, 5, and 6
Objective 1.2	Improve Technology Training Program	State Objective 4.2	D.O. Goals 3, 5, and 6
Objective 1.3	Enhance Collaboration and Communication	State Objectives 3.3 and 4.5	D.O. Goals 3, 5, and 6
Objective 1.4	Implement a codified methodology for providing professional services	State Objectives 4.4 and 4.5	D.O. Goals 3, 5, 6 and 7

Strategic Initiative 2. Applications and Business Management

Applications and Business Management supports the State Strategic Goals of *State-of-the-Art*, *Capacity*, *Capability*, and *Cost-Effectiveness*. DNRC intends to digitize records into an effective content management system (State Objective 4.6) that allows business analytics and intelligence (State Objective 4.4) to drive business decisions, more efficient workflows, and cost-effective service to citizens. Furthermore, by

developing a mature governance and leadership structure that guides standardized application development (State Objective 4.5), the Department will be able to better leverage SaaS and PaaS solutions (State Objective 6.2) that provide the optimal modern and intuitive experience for citizens and employees (State Objective 3.1).

		State Strategic Plan Goal/Objective Reference	Agency Goal/Objective Reference
Initiative Two	Applications and Business Management	State Goals 3, 4, and 6	
Objective 2.1	Facilitate a business analysis for the major DNRC programs	State Objectives 4.4	D.O. Goals 3, 5, and 6
Objective 2.2	Implement a stronger governance framework and associated practices	State Objectives 3.1, 3.3 and 4.3	D.O. Goals 3, 5, 6 and 8
Objective 2.3	Develop a capability for data-driven business intelligence & analysis	State Objective 4.4	D.O. Goals 3, 4, 5, and 6
Objective 2.4	Enhance, Develop or procure key business applications	State Objectives 3.1 and 3.3	D.O. Goals 3, 5, and 6
Objective 2.5	Enable electronic payment processing for key programs	State Objectives 3.1, 3.3 and 6.1	D.O. Goals 2, 3, 5, and 6

Strategic Initiative 3. Geospatial Integration

Though geospatial integration is unique to the Department and not specifically called out in the State Strategic Plan, it still ties to important state strategic goals. By incorporating spatial analysis and remotely sensed information into business operations, the Department drives better business analysis (State Objective 4.4), cost-efficiencies (State Goal 6 – *Cost-Effectiveness*), incident response capabilities (State Objective 4.1), and citizens services that are germane to natural resources and conservation (State Objective 3.1). The Department also strives to share geospatial data and resources with other agencies, universities, and the public (State Goal 2 - *Shared*) as well as protect sensitive data (State Goal 1 - *Secure*).

		State Strategic Plan Goal/Objective Reference	Agency Goal/Objective Reference
Initiative Three	Geospatial Integration	State Goals 2, 3, 4, and 6	
Objective 3.1	Geospatial Data Management	State Objective 4.4	D.O. Goals 3, 5, 6, and 7
Objective 3.2	Data Acquisition and Distribution	State Objective 4.4	D.O. Goals 3, 5, 6, and 7
Objective 3.3	Emerging Spatial Data Technologies	State Objective 3.1	D.O. Goals 3, 5, 6, and 7

Strategic Initiative 4. Continuity of Operations

Continuity of Operations has two major risk management components: security and disaster recovery. These tie to the State Goals of *Secure* and *Shared.* By necessity, security at DNRC incorporates the standards, best practices, common controls, security tools, and staff training (State Objectives 1.1, 1.2, 4.1, and 4.3) needed to maintain operations. Due to resource limitations, automation, monitoring, partnerships, and internal reviews (State Objectives 1.3, 1.4, and 1.5) are strategically important. Disaster recovery directly ties to the State Goals of *Capacity* and *Cost-Effectiveness*, specifically State Objectives 4.1 and 6.2.

		State Strategic Plan Goal/Objective Reference	**Agency Goal/Objective Reference**
Initiative Four	Continuity of Operations	State Goals 1, 4, and 6	
Objective 4.1	Review and improve departmental disaster recovery architecture, plans and procedures	State Objectives 4.1 and 6.2	D.O. Goals 3, 5, and 8
Objective 4.2	Review and improve internal security architecture, plans and procedures	State Objectives 1.1, 1.2, 4.1, and 4.3	D.O. Goals 3, 5, and 8
Objective 4.3	Provide targeted information to agency personnel to educate them on security best practices	State Objectives 1.3, 1.4, and 1.5	D.O. Goals 3, 5, and 8

Strategic Initiative 5. Infrastructure

This initiative ties to all the State Goals, as the Department relies on the Office of the State CIO to provide a robust, secure, scalable, and cost-effective computing and storage environment with full disaster recovery capabilities in place. Specific to the Department's objectives, increasing network bandwidth to regional offices and mobile staff (State Objective 4.8) is vital, and organizing the mobile environment through standardization and virtual platforms (State Objectives 2.2, 3.2, 4.4) and leveraging enhanced shared services and cloud platforms (State Objectives 6.1 and 6.2) are key to staff effectiveness. Threaded through all infrastructure services is the need for security as indicated in State Goals 1 (*Secure*) and 5 (*Capability*).

		State Strategic Plan Goal/Objective Reference	**Agency Goal/Objective Reference**
Goal Five	Infrastructure	State Goal, 1, 2, 3, 4, 5 and 6	
Objective 5.1	Mobilization Technologies	State Objective 4.8	D.O. Goals 3, 5, 7, and 8
Objective 5.2	Continuous Deployment	State Objectives 2.2, 3.2, 4.4	D.O. Goals 3, 5, 7, and 8
Objective 5.3	Employ Digital Records Management	State Objective 4.6	D.O. Goals 3, 5, 7, and 8
Objective 5.4	Leverage SaaS and Cloud-based solutions where optimal	State Objectives 6.1 and 6.2	D.O. Goals 3, 5, 7, and 8
Objective 5.5	IT Resource asset tracking and management	State Objectives 4.6	D.O. Goals 2, 3, 4, 5, and 8

Appendix B

Resources & Capabilities

Current information technology resources and capabilities (2-17-524(1)(c)(d), MCA).
Each agency's information technology plan must include:

- a baseline profile of the agency's current information technology resources and capabilities that:
  - includes sufficient information to fully support state-level review and approval activities; and
  - will serve as the basis for subsequent planning and performance measures.
- an evaluation of the baseline profile that identifies real or potential deficiencies or obsolescence of the agency's information technology resources and capabilities.

Information Technology Resources

The most current version of your agency detailed organizational chart(s) will be utilized for the baseline profile of the agency's information technology resources.

Summary of information technology resources:

Bureau / Unit Name	Number of FTE	Primary Function / Mission
Office of the CIO	1	Oversight and Leadership for improving the impact of IT in promoting program success
Applications Team	5	Development and Enhancement of business operations, application design, project management, basic training, and integration
Technical Services Team	6	Department Personnel Productivity through IT tools and services; shared security management
Data & Systems Team	5	Management of Servers and Databases for the Department; shared security management
Geographic Information Systems Team	5	Governance and integration of geospatial solutions across the organization to enhance program success

The department's OIT staff are often hampered at providing maximum business value to programs due to capacity and resource constraints. With an overall ratio of roughly 1:100 of each OIT team staff to department personnel, many departmental needs cannot be met in a timely fashion due to these challenges. When technology has so much to offer in business value and service efficiency, great strides in program effectivity could be gained by addressing this challenge.

Appendix C

Information Technology Capabilities

Summary of Systems:

Name	Description	Purpose
310 Database	External Facing Application Developed by DTM Solutions	This site allows the user to locate and view the attributes of river structures permitted under the 310 Permit system.
Sage Grouse Habitat Conservation Projects Database	External Facing Application Developed by Sitka Tech LLC	Determines if permitted projects are adding disturbance to Sage-Grouse habitat within the state of Montana.
Mastery-Autonomy-Purpose-Performance (MAPP)	Internal Facing Application	Performance Management System for DNRC in development as of 4/24/18.
Online Performance Review System (OPRS)	Internal Facing Application	Performance Management System for DNRC (Current)
Contracts and Grant System (CGS)	Internal Facing Application	The Contract and Grant Tracking System (CGS) is an application for the Financial Services Bureau that tracks Contracts and Grants of all the divisions of DNRC
Loan Accounting System (LAS)	Internal Facing Application	Tracks CARDD managed Loan Accounts Internal Facing Application Used by many people in CARDD to enter Loan information
Plone	Plone is a Web Content Management System, running on Python 2.7. Internal Facing Application	DNRC externally and internally facing websites.
DNRC Desktop Management System (Kace Tool)		Asset Management System
GIS Water Rights Assistance Tool (GWRAT)	Add-In for the Water Rights ArcGIS Tool Internal Facing Addon	Geospatial component for Water Rights
Open Source Ticket Request System (OTRS)	Internal Facing Application	Ticket Tracking System
Hazard Reduction Agreement (HRA) Database	Internal Facing Application	Hazard Reduction Assessment tracking system
Aquarius Montana Bureau of Mines and Geology (MBMG) Web Service	External Facing Application Data Export Only	Data porting from Aquarius to MBMG ftp location
Dam Emergency Action Plan System (DEAPS)	External Facing Application	Storage and access for Emergency Action Plans for High Hazard Dams in Montana

Dam Contacts	Internal Facing Application	Works with DEAPS to provide contact info
Dam Smart	Internal Facing Application	Dam projects database
Water Rights Information System (WRIS)	Internal Facing Application	Stores, maintains and provides access to Montana Water Rights
Water Rights Query System (WRQS)	Internal Facing Application	Tool for State Employees to access water rights information from WRIS
Situation Analyst Montana (SAM)	External/Internal Facing Application	On-Line Fire Reporting system
Trust Land Management System (TLMS)	Internal Facing Application	Allows management Montana Trust Lands
DNRC Bill Tracking System (BTS)	Internal Facing Application	Provides customized tracking and notification of bill actions during legislative sessions
F300 Fire Reporting System	External/Internal Facing Application	On line fire reporting tool
F1000 Fire Reports Collector	Internal Facing Application	On line fire information reports
Fire Protection Assessment System (FPA)	Internal Facing Application	Calculates fire protection assessment fees for Montana citizens
Legal Document Tracker (LDT)	Internal Facing Application	Assists in the collection and access to legal documents used by the DNRC Legal Department
Seedling Tracking System (STS)	Internal Facing Application	Provides a customized inventory system used by the Forestry Division to track nursery sales and inventory.

Summary of Hardware:

Appliances: Devices designed for internet access and specialized business use, but without capabilities of a fully-equipped server. Appliances can be physical or virtual. Include all chassis, tape systems, firewalls, switches, KVM's, and USB Anywhere devices. Do not include appliances hosted by SITSD.

Total Number of Appliances	17 devices - KVMs, switches, firewalls, wireless access points, video recorder, etc. in sites around the state

Physical Servers: Include physical servers that are used for virtualization**.** Do not include servers hosted by SITSD.

Total Number of Physical Servers	27 physical servers in regional offices across the state

Virtualized Servers: Do not include servers hosted by SITSD.

Total Number of Virtualized Servers	0 virtual servers; all DNRC virtual servers hosted in a VSP provided by DOA SITSD

Storage: SANs and NASs. Do not include storage hosted by SITSD.

Total Usable Storage Space	N/A

Devices: Currently in service including, but not limited to desktops, laptops, mobile devices, printers, cameras, etc.

Device Type	Quantity	Estimated Replacement Value
Desktops	572	572 x estimated $1,300/device = $743,600
Laptops	232	232 x estimated $1,650/device = $382,800
Mobile Devices (tablets, phones, etc.)	263	263 x estimated $800/device = ~$210,400
Printers	102	varies
Copiers	34	varies
Cameras		
Document Scanners	18	varies
Plotters	9	varies
Polycom Systems	22	$163,442

These estimated replacement values are estimates based on current price of new hardware. This cost is a major reason why many staff utilize older, slower systems. Actual asset current value is significantly less. The OIT seeks to procure the correct system for the task at hand to ensure procured systems can sustain the projected use without over-purchasing to the identified need.

Appendix D

Historic Comprehensive Work Goals

Goal Number 1:

IT Goal 1 Develop DNRC-wide applications and shared data infrastructure that meet agency business requirements, reduce cost, improve efficiency of operations, and enhance security of information assets.

Description: Examine current systems and business processes such as document storage and archiving, common-application needs, redundant storage, shared resources, and workflows to provide efficient access to data or common IT systems that are used across divisions.

Benefits: Scaling of systems to maximize utilization and cost benefits. Eliminates redundancy, provides for central development of shared resources. Streamlines upgrades, maintenance, and training for applications. Ensures security of information assets. Improves IT-Business alignment.

Which agency IT strategies does your goal address? Improve network capacity and performance at DNRC sites to enable efficient and effective remote access to state and agency resources. Consolidate data and systems resources and coordinate infrastructure development to foster cross-division/program collaboration and promote efficient development, use, and maintenance of technology resources. Ensure critical data and systems meet program requirements for disaster recovery and continuity of service. Deliver web and mobile access to DNRC services for citizens, businesses, and employees. Develop systems that support program requirements across diverse geographic and operational environments. Leverage standards, technical innovations, and systems from other governmental entities and universities where appropriate. Share systems, components, and functionality across MT agencies, MT political subdivisions, and other states where common business requirements exist. Utilize cloud, open source, and existing systems where possible; deploy custom built systems when necessary or advantageous to meet specialized business requirements. Implement an agency cyber security program.

Supporting Objective/Action

Objective 1-1 Scanning and storage of critical department documents.

Describe the business requirements or business problem driving this objective: Long-term records management, storage, and retrieval are major needs of DNRC. DNRC divisions have storage rooms full of documents that must be retained for long periods of time as mandated by state records management rules. The objective is to establish a document scanning and storage system and/or a standardized process that provides for archival storage of documents and easy retrieval.

Describe the benefits to be derived from the successful completion of this objective: Improved business operations through enhanced document retrieval and reduced reliance on paper storage. Reduced chance of record loss due to natural disaster.

Describe the anticipated risks associated with this objective: Cost of deploying the system and funding from the Legislature. Additional staff or reassignment of staff to scan documents and manage new business processes. User training and implementation. Continued need to retain paper documents to comply with existing statutes.

What is the timeframe for completion of this objective: Agency-wide preliminary evaluation of the scope of this project has been completed. Transition to the SITSD enterprise solution from FileNet is underway. Further action is dependent upon cost rates, funding, and personnel resources to implement setup and training on new vendor workflows.

Describe the critical success factors associated with this objective: A centralized system is in place for document scanning and storage and critical records are available/retrievable in a durable electronic format.

Supporting Objective/Action

Objective 1-2 Expenditure tracking system for divisional and bureau budgets.

Describe the business requirements or business problem driving this objective: Division staff in agency offices have requested real-time tracking of expenditures against budgets to provide for more efficient use of resources, budget management and coordination of spending.

Describe the benefits to be derived from the successful completion of this objective: The greatest benefit is better real-time decision making. Aid in improved budget management and mitigate over-expenditure risks. Better ability to transfer funds as needed to meet agency needs.

Describe the anticipated risks associated with this objective: Staff time or budget to build the application. Agreement between operating units on standards and how the system should work. Connecting the information with SABHRS.

What is the timeframe for completion of this objective: This project is on hold until funding is available. The first step will be development of project requirements. A decision will then be made on proceeding with either internal development, purchase of COTS software, or hiring a contractor.

Describe the critical success factors associated with this objective: Efficient budget management by divisions. Real-time tracking of expenditures and expenses. Standardized format and successful SABHRS integration.

Supporting Objective/Action

Objective 1-3 Expand and integrate remote communications technologies.

Describe the business requirements or business problem driving this objective: DNRC has offices all across the state. Cost and time for travel impacts staff ability to accomplish their jobs effectively. Expanded use of remote communications tools such as video conferencing and real-time communications will provide for effective communication and business achievement between DNRC staff in locations across Montana.

Describe the benefits to be derived from the successful completion of this objective: Reduce travel-related time and costs, improve staff efficiency, reduce energy costs for the agency, and improve objective achievement through collaboration across department office locations.

Describe the anticipated risks associated with this objective: Additional costs for use of remote communications tools in multiple locations. Network bandwidth limitations may impact availability, reliability, and/or usability. Impact on the state network.

What is the timeframe for completion of this objective: DNRC currently has video conferencing systems in Helena (5), Missoula (5), Kalispell (2), Lewistown, Bozeman, Miles City, Havre, Glasgow, Libby, Swan, and a shared system with DEQ in Billings. The agency has expanded services to all offices through the use of remote communications tools such as SITSD Real Time Communications services and adoption of mobile device technologies.

Describe the critical success factors associated with this objective: Improved coordination among geographically dispersed team members. The systems are used extensively for inter- and intra- agency meetings involving staff in remote offices.

Supporting Objective/Action

Objective 1-4 Pursue use of mobile technologies to improve efficiency and effectiveness of DNRC operations.

Describe the business requirements or business problem driving this objective: DNRC staff are highly mobile and geographically disbursed, often working in remote areas, under adverse environmental conditions. Mobile technologies offer the promise of dramatically improved operational effectiveness and efficiency.

Describe the benefits to be derived from the successful completion of this objective: Improved communication between DNRC staff who are geographically disbursed and highly mobile. Permit access to data-intensive application services by enabling access to such services regardless of location, including geographically remote areas. Reduce cost and improve efficiency of geospatial data collection and analysis through consolidation and integration of hardware and software systems (e.g. leverage a single GPS enabled tablet or other mobile device to automate geographic data collection, data processing and transfer, mapping, and analysis using custom-built mobile applications which integrate with centralized DNRC or other agency systems). Improve service responsiveness by providing DNRC staff with real-time access to critical information resources, without the need to be physically located in their offices.

Describe the anticipated risks associated with this objective: Cost and time to develop internal skills for application and systems development, deployment, maintenance, and use.

New, rapidly changing technology landscape. Integration challenges with legacy systems. Security and management challenges associated with rapidly evolving, diverse mobile computing environments. State policies with respect to external access to systems located within the state network.

What is the timeframe for completion of this objective: Ongoing.

Describe the critical success factors associated with this objective: Robust, ubiquitous access to computing resources.

Supporting Objective/Action

Objective 1-5 Implement a mobile device management solution.

Describe the business requirements or business problem driving this objective: Proliferation of mobile devices present management and security challenges. An increasing mix of DNRC owned and personally owned (BYOD) devices exacerbates these challenges. Mitigation of such concerns is critical to expansion of the use of mobile applications for agency operations.

Describe the benefits to be derived from the successful completion of this objective: Effective, reliable, and secure operations. Ability to segregate and secure state and non-state data and applications.

Describe the anticipated risks associated with this objective: Cost of device management solutions. New, rapidly changing technology landscape. Security and management challenges associated with rapidly evolving, diverse mobile computing environments. Cloud based solutions may reduce cost but may also present new challenges such as legal venue and data security.

What is the timeframe for completion of this objective: Currently underway via the SITSD enterprise Mobile Device Management solution.

Describe the critical success factors associated with this objective: Ability to effectively manage multiple and diverse devices, including security, configuration, provisioning, and information assurance.

Supporting Objective/Action

Objective 1-6 Explore the use of virtualized desktop infrastructure.

Describe the business requirements or business problem driving this objective: DNRC staff are highly mobile and geographically disbursed. This creates management and security challenges for IT support staff.

Describe the benefits to be derived from the successful completion of this objective: Virtualized desktop infrastructure (VDI) offers the potential to dramatically improve system management effectiveness and efficiency, including providing greater control of desktop security, maintaining build consistency, easing OS migrations, providing snapshot capabilities for end user desktops, allowing for device flexibility, and reducing energy usage.

Describe the anticipated risks associated with this objective: Implementation challenges; rapidly changing technology; network limitations; storage limitations; end user acceptance.

What is the timeframe for completion of this objective: Ongoing, FY2018/2019.

Describe the critical success factors associated with this objective: Improved effectiveness and efficiency of system provisioning and support. Usability and flexibility meets client needs. Performance and ease-of-use meets expectations.

Supporting Objective/Action

Objective 1-7 Pursue coordinated, robust, scalable, maintainable, and secure systems, data, and supporting network infrastructure.

Describe the business requirements or business problem driving this objective: Accurate, reliable, timely, and secure data services are critical to effective decision-making. Proper architecture is essential to ensuring DNRC services meet operational requirements for availability, recoverability, business continuity, and information assurance.

Describe the benefits to be derived from the successful completion of this objective: Effective, reliable operations. Where possible, leveraging existing state enterprise resources and/or providing centrally managed agency infrastructure can provide efficiency and reliability gains. Ability for agency to ensure continuity of government services.

Describe the anticipated risks associated with this objective: Cost of infrastructure purchase, deployments, and upgrades. Network bandwidth and latency constraints. Challenge of coordinating service requirements across divisions. Management and oversight of external contractors.

What is the timeframe for completion of this objective: Ongoing.

Describe the critical success factors associated with this objective: Deployment of consolidated infrastructure available for agency systems. Implementation of data and systems architecture and management standards across the organization. Ability to set and meet availability and recoverability targets.

Current Status: Objective is largely implemented and operational. Scaled architecture has been procured at more cost-effective rates than otherwise available in the enterprise. Network bandwidth upgrades have been achieved for most DNRC offices. Objective remains because continual improvement is a constant necessity to stay current in this area.

Supporting Objective/Action

Objective 1-8 Migrate organizational applications from legacy systems to modern, secure, enterprise systems.

Describe the business requirements or business problem driving this objective: Many divisional applications have been in use for nearly a decade, and in need of upgrading to newer code that can leverage new business tools with improved cyber security.

Describe the benefits to be derived from the successful completion of this objective: Multi-tiered application systems using enterprise database solutions allows applications to have an improved security model supported by the database, data quality assurance, and meet backup and recovery requirements. Separation of concerns decouples client-side operating environment changes from application functionality, reducing dependencies and potential service disruption for end-users.

Describe the anticipated risks associated with this objective: Large number of inadequately documented applications and poorly understood business processes throughout DNRC increases complexity and risk. Costs associated with application rewrites and/or conversions.

What is the timeframe for completion of this objective: Ongoing – as applications are identified and personnel resources and funding are available.

Describe the critical success factors associated with this objective: Conversion of critical databases to robust, supportable systems with enforceable security models and the ability to ensure data integrity.

Current Status: The Applications Team has migrated many such systems to enterprise databases. They have also identified and documented all of the lingering legacy applications and are in the initial planning stages to convert them to use modern enterprise solutions. Phase one of the process is to migrate the legacy backend to use the enterprise MS SQL Server platform while keeping the front-end user interface intact for a later replacement. Phase two of these conversions is to plan and execute a migration of each front-end interface to a modern web technology that follows state business practices.

Supporting Objective/Action

Objective 1-9 Develop and implement an information technology business structure.

Describe the business requirements or business problem driving this objective: Strategic planning and coordination of information technology projects and policies needs to target the primary business objectives of the organization to facilitate success. Agency programs need IT as a strategic partner in achieving their business goals.

Describe the benefits to be derived from the successful completion of this objective: More effective management and improved alignment between IT project portfolio and business requirements. Enhanced collaboration and system interoperability. More efficient use of agency resources. Faster achievement of objectives to spur program success and service growth.

Describe the anticipated risks associated with this objective: Implementation challenges. Ensuring adequate representation across business units while maintaining decision-making agility and flexibility. Organizational culture that views IT as an afterthought to program endeavors.

What is the timeframe for completion of this objective: FY2017/2018.

Describe the critical success factors associated with this objective: Improved coordination, data sharing, and use of resources. Increased alignment of IT project portfolio, policies, and business processes with division operational needs and agency mission.

Goal Number 2:

IT Goal 2 Support the new Sage Grouse Program Administratively attached to DNRC's CARDD division.

Description: Provide guidance, resources, tools, and processes to assist the Sage Grouse Program as it develops. Provide significant project management of developing applications and program technological processes.

Benefits: Cost-effective use of program funds to establish a successful habitat conservation program that benefits all Montanans.

Which agency IT strategies does your goal address? Consolidate data and systems resources and coordinate infrastructure development to foster cross-division/program collaboration and promote efficient development, use, and maintenance of technology resources. Deliver web and mobile access to DNRC services for citizens, businesses, and employees. Develop systems that support program requirements across diverse geographic and operational environments. Leverage standards, technical innovations, and systems from other governmental entities, universities, and the private sector where appropriate.

Supporting Objective/Action

Objective 2-1 Develop a Sage Grouse Program Web presence for the public.

Describe the business requirements or business problem driving this objective: The Sage Grouse Program is a new program created by the 2015 Legislature and executive order. The program needs to establish a presence, personnel, management, strategic direction, and implementation in a short time frame. The program needs a strong tool to communicate with the public.

Describe the benefits to be derived from the successful completion of this objective: Improved agency outreach and communications. Access to new audiences.

Describe the anticipated risks associated with this objective: Politically sensitive issues could produce negative public feedback. Scope of task may often change as the program develops, consuming an excessive amount of IT resources and personnel hours.

What is the timeframe for completion of this objective: Ongoing; January 1, 2016 for initial rollout with continual maturation.

Describe the critical success factors associated with this objective: Effective deployment of a website page and information. Effective development of customer interaction portal. Effective communication of program objectives. Public use and acceptance of the new media information.

Supporting Objective/Action

Objective 2-2 Develop Montana's Density and Disturbance Calculation Tool.

Describe the business requirements or business problem driving this objective: The Sage Grouse Program is a new program created by the 2015 Legislature and executive order. The program needs to establish a presence, personnel, management, strategic direction, and implementation in a short time frame. The program needs a strong tool to measure habitat disturbance of both existing and new proposals of anthropogenic infrastructure development.

Describe the benefits to be derived from the successful completion of this objective: Ability to calculate habitat impacts that enable the program to proactively mitigate sage grouse habitat disturbance.

Describe the anticipated risks associated with this objective: Politically sensitive issues could produce negative public feedback or results. Scope of task may often change as the program develops, consuming an excessive amount of IT resources and personnel hours.

What is the timeframe for completion of this objective: Ongoing; January 1, 2016 for initial rollout with continual maturation.

Describe the critical success factors associated with this objective: Effective deployment of technology and information. Effective development of customer interaction. Effective communication of program objectives. Public use and acceptance of the new media information. Accurate measurement of habitat disturbances for biological and program use.

Supporting Objective/Action

Objective 2-3 Manage Existing Disturbance data development and Version 2 of the DDCT projects.

Describe the business requirements or business problem driving this objective: The Sage Grouse Program is a new program created by the 2015 Legislature and executive order. The program needs to establish a presence, personnel, management, strategic direction, and implementation in a short time frame. The program needs a strong tool to measure habitat disturbance of both existing and new proposals of anthropogenic infrastructure development.

Describe the benefits to be derived from the successful completion of this objective: Successfully managing the contracts resulting from two (2) RFPs to develop the data needed for the automation of the program DDCT tools and the development of a complex application framework for citizens to engage in project proposals.

Describe the anticipated risks associated with this objective: Politically sensitive issues could produce negative public feedback or results. Scope of task may often change as the program develops, consuming an excessive amount of IT resources and personnel hours.

What is the timeframe for completion of this objective: December 2016 for initial rollout with continual maturation.

Describe the critical success factors associated with this objective: Effective deployment of technology and information. Effective development of customer interaction. Effective communication of program objectives. Public use and acceptance of the new media information. Accurate measurement of habitat disturbances for biological and program use.

Supporting Objective/Action

Objective 2-4 Integration of Habitat disturbance data with the Habitat Quantification Tool (HQT).

Describe the business requirements or business problem driving this objective: The Sage Grouse Program is a new program created by the 2015 Legislature and executive order. The program needs to establish a presence, personnel, management, strategic direction, and implementation in a short time frame. The program needs a strong tool to measure habitat disturbance of both existing and new proposals of anthropogenic infrastructure development.

Describe the benefits to be derived from the successful completion of this objective: The output of existing program efforts to measure habitat disturbance needs to be integrated into the HQT that has yet to be developed.

Describe the anticipated risks associated with this objective: Politically sensitive issues could produce negative public feedback or results. Scope of task may often change as the program develops, consuming an excessive amount of IT resources and personnel hours.

What is the timeframe for completion of this objective: FY17

Describe the critical success factors associated with this objective: Effective deployment of technology and information. Effective development of the HQT. Effective communication of program objectives. Public use and Legislative acceptance of the new media information. Accurate measurement of habitat disturbances for biological and program use.

Goal Number 3:

IT Goal 3 Expand agency information available over the Internet and expand access to E-government services for DNRC.

Description: Demand is increasing for electronic access to agency information and services. The goal is to expand information available on the agency website and create new E-government services for the public.

Benefits: Electronic access to information and services provided by DNRC to the public.

Which agency IT strategies does your goal address? Deliver web and mobile access to DNRC services for citizens, businesses, and employees. Leverage standards, technical innovations, and systems from other governmental entities and universities where appropriate.

Supporting Objective/Action

Objective 3-1 Expand DNRC E-government services available to the public.

Describe the business requirements or business problem driving this objective: Agency customers are asking for E-government services for conducting business with DNRC. The agency has deployed a virtual cashier payment system to allow customers to pay water fees with credit cards at agency offices. However, customers still mail in applications and payments or mail in payments for leases. Projects identified for potential development in this plan include:

1. Accept water measurement records online.
2. Improve the online nursery application. Application has been replaced but online payment system is not included.
3. Develop a variety of GIS applications for access to agency data, including state lands management, water rights, fire, and forestry. *
4. Develop an online application process for Hazard Reduction Agreements and/or the WUI fuel reduction and priority landscape grant programs.

Describe the benefits to be derived from the successful completion of this objective:

Expanding and improving the ability of citizens and businesses to conduct business with the agency through secure, reliable online systems. Reduced costs for processing of payments, water rights transfers, and requests for information.

Describe the anticipated risks associated with this objective: Access to resources for development of the new E-government services. Updates to current systems to accommodate E-government applications.

What is the timeframe for completion of this objective: Database updates and growth of in-house web and mobile application development skills are critical to moving forward with E-government services. Creation of new services is dependent on staff availability and funding.

Describe the critical success factors associated with this objective: Creating effective new E-government applications for use by the public.

* Some progress has been made, but is constantly thwarted by other high priorities such as Sage Grouse, Forests in Focus, Urban Forestry, Timber Stand Mobile apps, Security needs, etc.

Supporting Objective/Action

Objective 3-2 Continue expanding the use of social media for public outreach.

Describe the business requirements or business problem driving this objective: DNRC has a variety of systems in place for public outreach. These include news releases, publications, websites, mailing lists, Facebook, Twitter, etc. The objective is to expand upon methods of improving communications with constituents and the public via social media.

Describe the benefits to be derived from the successful completion of this objective: Improved agency outreach and communications. Access to new audiences.

Describe the anticipated risks associated with this objective: Potential negative public feedback. Navigating security or legal issues. Politically sensitive issues being propagated beyond department control.

What is the timeframe for completion of this objective: Ongoing.

Describe the critical success factors associated with this objective: Effective management of social media communications.

Current Status: Largely implemented and growing.

Supporting Objective/Action

Objective 3-3 Redesign DNRC public and internal websites; pursue migration of public web site to a web content management system.

Describe the business requirements or business problem driving this objective: DNRC's web presence is dated, poorly organized, and inefficient to maintain.

Describe the benefits to be derived from the successful completion of this objective: Improved agency outreach and communications. Ability of staff and the public to locate relevant, timely, accurate information quickly and easily. Use of robust technology platforms and practices can reduce staff time required to maintain and update web sites.

Describe the anticipated risks associated with this objective: Available resources. Balancing conflicting stakeholder visions for design and architecture. Access to appropriate web CMS system.

What is the timeframe for completion of this objective: FY2016.

Describe the critical success factors associated with this objective: Compelling, modern design. Ease of site navigation. Fewer resources needed to maintain and update site presentation and content.

Current Status: External accomplished; internal underway.

Goal Number 4:

IT Goal 4 DNRC Enterprise GIS development

Description: Continue implementation of an Enterprise GIS system for DNRC to provide an organization-wide approach that facilitates the efficient integration, implementation, operation, and management of tabular and spatial information.

Benefits: All divisions within DNRC will benefit. DNRC staff will have easy access to the GIS data that is necessary to complete their work (both updates and retrievals). The public will benefit from access to geospatial information in DNRC applications. Other state agencies will not have to recreate GIS data available from DNRC.

Which agency IT strategies does your goal address? Consolidate data and systems resources and coordinate infrastructure development to foster cross-division/program collaboration and promote efficient development, use, and maintenance of technology resources. Ensure critical data and systems meet program requirements for disaster recovery and continuity of service. Expand use of geographic information technologies to improve situational awareness, analysis of complex data sets, and decision-making ability. Deliver web and mobile access to DNRC services for citizens, businesses, and employees. Develop systems that support program requirements across diverse geographic and operational environments. Leverage standards, technical innovations, and systems from other governmental entities and universities where appropriate. Share systems, components, and functionality across MT agencies, MT political subdivisions, and other states where common business requirements exist. Utilize cloud, open source, and existing systems where possible; deploy custom built systems when necessary to meet specialized business requirements.

Supporting Objective/Action

Objective 4-1 Continue to establish a coordinated GIS infrastructure.

Describe the business requirements or business problem driving this objective: Continue implementation of an agency GIS infrastructure for storage and access to the department's geospatial data, files, and products.

Describe the benefits to be derived from the successful completion of this objective: A tiered approach to distribution of GIS data for use at the local, division, agency, and state level. A variety of applications and access options will provide critical data to all users whether they are novice or expert GIS users. Data will be replicated or served via custom applications from a central location to the locations where the data is used.

Describe the anticipated risks associated with this objective: Cost and maintenance of the hardware needed to store and distribute the GIS information. Employee acceptance and participation in new systems and procedures. Potential disruption to existing business processes. Ensuring QA/QC standards and that data stays current on an agency-wide scale. Insufficient network bandwidth to enable effective integration of remote offices with a coordinated infrastructure.

What is the timeframe for completion of this objective: Ongoing.

Describe the critical success factors associated with this objective: Additional data is managed using centralized databases and expanded use of map services for publishing and editing data.

Plans developed for data maintenance and workflows built for updating data.

Supporting Objective/Action

Objective 4-2 Develop flexible, targeted GIS applications for use in division business operations.

Describe the business requirements or business problem driving this objective: Many DNRC programs need a simple GIS system designed specifically for their program to assist with business analysis, planning, and operations.

Describe the benefits to be derived from the successful completion of this objective: Deployment of mapping applications integrated with business applications that can be easily accessed by agency staff and the public without installing expensive GIS software. Improved productivity by developing optimized workflows with integrated spatial data.

Describe the anticipated risks associated with this objective: Demand from public and staff for additional applications or capabilities that exceed available development resources. Accurately assessing program needs to deliver targeted custom products that meet program business needs.

What is the timeframe for completion of this objective: Ongoing.

Describe the critical success factors associated with this objective: Better access to program specific data and consistent access to standardized GIS tools for users in all locations. Reduction of training, supporting, and purchasing complex and difficult to use software for our general user base.

Supporting Objective/Action

Objective 4-3 Maintain GIS data sets in centralized databases for use by DNRC, other agencies, and the public.

Describe the business requirements or business problem driving this objective: DNRC staff create GIS data sets in support of their operations. As these data sets are created they need to be effectively and efficiently disseminated. Divisions also need the ability to enhance or expand data sets already in use both for their needs and to benefit the agency. Ensuring that these datasets meet QA/QC standards promotes the concept of creating authoritative and official datasets for use across the agency and by the public.

Describe the benefits to be derived from the successful completion of this objective: Improved sharing of GIS information. Establishing shared GIS data layers and determining methods for updating this information. Common GIS data layers that are regularly updated are required for timely and accurate monitoring, tracking, and reporting obligations.

Describe the anticipated risks associated with this objective: Conflicting needs for information. Incomplete data sets or layers. Need to constantly update the information. Lack of business processes that leverage consolidated, authoritative data sets. Effect of utilization-based cost model on dissemination of information with fixed agency budget.

What is the timeframe for completion of this objective: Ongoing.

Describe the critical success factors associated with this objective: Develop quality control guidelines and procedures for creating and publishing data. Continue to publish authoritative DNRC datasets to publicly available map services. Expressed and/or demonstrable DNRC staff ownership of data sets.

Supporting Objective/Action

Objective 4-4 Development and integration of GIS applications for mobile devices.

Describe the business requirements or business problem driving this objective: The demand for mobile access to geospatial data in the office, the field, and from the public continues to increase. To keep up with this need, DNRC is exploring the use of new and developing technologies such as map services, interactive web mapping applications, custom desktop applications, and mobile applications. The ability to view and edit GIS data from the field or wherever one may be located is critical. There is also a need to convert existing field data collection applications and workflows to modern, easy to use platforms.

Describe the benefits to be derived from the successful completion of this objective: Staff and members of the public will have access to view and edit the appropriate data from a variety of locations, improving data collection workflows while reducing opportunity for error. For example, staff in DNRC's Fire and Aviation Management bureau could relay real time information about a fire's location using this technology. All DNRC Divisions could benefit from new mobile GIS tools that allow users to navigate, streamline collection and incorporation of data into consolidated data stores, and share information.

Describe the anticipated risks associated with this objective: Evaluating and determining the appropriate technology to use. These platforms often conform to rapid release cycles and require frequent updating. Ensuring that data served via mobile services is secure and accurate. Synchronization of data collected off-network with central GIS database systems.

What is the timeframe for completion of this objective: Ongoing.

Describe the critical success factors associated with this objective: Assessing DNRC needs and determining the appropriate tools to meet these needs. Developing products that successfully deploy information across a variety of platforms, improve workflow efficiencies for staff and provide additional data transparency for the public.

Supporting Objective/Action

Objective 4-5 Use geospatial data for modeling and analysis projects.

Describe the business requirements or business problem driving this objective: As a natural resource management agency, DNRC often has to analyze complex systems and environments to determine the best policy or course of action.

Describe the benefits to be derived from the successful completion of this objective: GIS has the ability to analyze complex datasets and multiple factors, providing guidance and critical information for the decision-making process. Currently, DNRC's GIS data is used mostly for display and simple queries, which does not make full use of the data's capabilities. GIS analysis allows the agency to predict changes in landscape over time, detect patterns and trends, and identify critical areas of concern. Examples of geospatial analysis that would benefit DNRC programs include hydrologic and floodplain modeling, land management planning, and wildfire risk assessments.

Describe the anticipated risks associated with this objective: Communicating adequately the benefits of geospatial analysis to program staff to gain stakeholder buy-in for instituting change to legacy workflows.

What is the timeframe for completion of this objective: Ongoing.

Describe the critical success factors associated with this objective: Utilizing available data to its full potential as a decision-making and predictive tool. Developing standard models for common analytical processes that can be used across the department. Expanded access to GIS modeling and analysis expertise across agency programs.

Supporting Objective/Action

Objective 4-6 Enhance existing non-spatial databases to take advantage of GIS technology.

Describe the business requirements or business problem driving this objective: DNRC maintains non-spatial databases that could provide additional benefits if the data were geospatially enabled. Some examples include databases for fire tracking, trust lands management, and grant tracking. Staff and the public often need to see this information shown on a map and this is currently a complicated process that requires significant GIS skills and training.

Describe the benefits to be derived from the successful completion of this objective: As an agency that manages natural resources in locations across the state, the ability to answer questions about where agency work takes place is critical. Using GIS provides a simple way to display and organize data. For example, if one wanted to know more about where grants were awarded in the state, where wildfires had occurred, or information relating to trust lands management, displaying such information on a map would provide a visual and easy to understand means to answer to such questions. It also enables staff to analyze patterns and query data based on location.

Describe the anticipated risks associated with this objective: Employee acceptance and participation in new systems and procedures. Communicating benefits of geospatially enabling data. Available resources.

What is the timeframe for completion of this objective: Ongoing.

Describe the critical success factors associated with this objective: Data previously used only as tabular information is maintained as geospatially enabled data or linked to appropriate GIS data.

Goal Number 5:

IT Goal 5 Improve efficiency of Water Resource Division IT applications.

Description: Continue legislatively mandated water rights adjudication and expand access to water rights, water use, emergency action plans, seepage monitoring, and dam safety information used inside the department and by the public. Upgrade applications to the latest development standards as determined by OIT and SITSD.

Benefits: Improved access to information used in decision-making within the agency and by the water courts. Improved access to information by citizens and businesses.

Which agency IT strategies does your goal address? Consolidate data and systems resources and coordinate infrastructure development to foster cross-division/program collaboration and promote efficient development, use, and maintenance of technology resources. Deliver web and mobile access to DNRC services for citizens, businesses, and employees. Develop systems that support program requirements across diverse geographic and operational environments. Leverage standards, technical innovations, and systems from other governmental entities and universities where appropriate. Utilize cloud, open source, and existing systems where possible; deploy custom built systems when necessary to meet specialized business requirements.

Supporting Objective/Action

Objective 5-1 Improve electronic document storage and retrieval system.

Describe the business requirements or business problem driving this objective: Originally, the thinking was that one system would fit all users' needs. A system developed by the Water Management Bureau was to be modified to fit other programs. However, it became evident that each program's needs were sufficiently unique to require an independent document tracking system for each. The dam safety program developed its own internal document tracking system and the floodplain program is now doing likewise.

Describe the benefits to be derived from the successful completion of this objective: Improved access to project documents for business operations.

Describe the anticipated risks associated with this objective: Cost for development and maintenance of infrastructure and external providers.

What is the timeframe for completion of this objective: Ongoing.

Describe the critical success factors associated with this objective: Expansion of document tracking system to additional document categories.

Supporting Objective/Action

Objective 5-2 Continue document scanning for Water Rights.

Describe the business requirements or business problem driving this objective: Water Resources Division is in the midst of a multi-year program to scan all water rights records into digital format. This information is needed for water rights adjudication, any new appropriation of water, water courts, and overall water rights management. Expansion of this system for records compiled by the Reserve Water Rights Compact Commission is anticipated in FY2014/2015.

Describe the benefits to be derived from the successful completion of this objective:

Continued scanning will create a complete digital record of water rights in the State of Montana. This has replaced use of microfilm for record keeping as of 2007. Both the water rights database and scanned images function in unison to provide both staff and the public with vital tools necessary to effectively work with water rights data. They both aid in researching and analyzing historically based water rights questions. The water rights database and scanned images will continue to be a necessary component in the management of Montana's water rights data for as long as DNRC is tasked with managing a centralized recordkeeping system.

Describe the anticipated risks associated with this objective: Continued funding. Potential changes to state enterprise electronic content/records management system project.

What is the timeframe for completion of this objective: Ongoing.

Describe the critical success factors associated with this objective: Progress is being made on scanning all of the past water rights and this portion of the project is expected to be complete by FY2015. In addition to this project, all new water rights files and documents updating existing water rights files are being scanned, which will be ongoing. Another future scanning project is planned to determine if the staff and expertise developed in scanning Water Rights documents can be transferred to other needs within the agency.

Supporting Objective/Action

Objective 5-3 Update/Replace Toston dam monitoring and management systems.

Describe the business requirements or business problem driving this objective: Toston dam's scada system is antiquated and its management systems, processes, and security do not meet FERC regulations.

Describe the benefits to be derived from the successful completion of this objective:

Improved system security, improved performance and reliability, and better management controls. Improvements to public safety through better protection of dam systems and continuity of operations. Risk is large; primary benefit is mitigation of risk. Revenue from Toston Dam is used to maintain other state-owned recreation, irrigation and flood-control projects.

Describe the anticipated risks associated with this objective: Funding and staff time are limited for working on this application. Network access at the remote location is very limited. A crippling cyber-attack at Toston Dam could result in both a loss of revenue as well as potentially creating safety and maintenance issues.

What is the timeframe for completion of this objective: FY17

Describe the critical success factors associated with this objective: Funding and resources. Adequate network connectivity for secure remote management.

Supporting Objective/Action

Objective 5-4 Evaluate needs and update the Water Rights Information System (WRIS).

Describe the business requirements or business problem driving this objective: Continue

Water Rights database application updating to meet business needs of the agency and the state Water Courts for both tabular and spatial data. Evaluate options to migrate system from existing, aging technology platform to a modern, sustainable, more efficient system.

Describe the benefits to be derived from the successful completion of this objective: Improved efficiency supporting and hosting the WRIS. Improved data integrity, including agency and public access to data. Improved alignment between system capabilities and business process requirements, ease of use, and ability to share information across organizational boundaries.

Describe the anticipated risks associated with this objective: Funding and staff time.

What is the timeframe for completion of this objective: Ongoing.

Describe the critical success factors associated with this objective: Updates and modernization of the database and application. Improved public access to data.

Current Status: RFP has been awarded for consulting on the next phase and direction of the SOW.

Supporting Objective/Action

Objective 5-5 Update the Division's contact database and evaluate migration to MS SQL Server environment.

Describe the business requirements or business problem driving this objective: Updates are needed to this system to allow continued access to Division-wide stakeholder contact information and improve reliability.

Describe the benefits to be derived from the successful completion of this objective: Shared contact information between the various Division programs that deal with the same stakeholders.

When one group receives and update (email, address, etc.), all do.

Describe the anticipated risks associated with this objective: Cost of SQL server hosting has to date resulted in the Division maintaining this application as a single MS Access file located on a local server.

What is the timeframe for completion of this objective: FY2015.

Describe the critical success factors associated with this objective: All staff have access to a single, reliable source for contact information.

Current Status: The database has been redesigned and is undergoing development.

Supporting Objective/Action

Objective 5-6 Develop a comprehensive State Water Plan GIS system.

Describe the business requirements or business problem driving this objective: A State

Water Plan is required per 2013 legislative action. To accomplish this, DNRC's Water Management Bureau needs to centralize its water related spatial data into an enterprise database to effectively generate the 140 cartographic products required to support the plan. Business workflow processes need to be established to leverage the new authoritative database and to continue developing improved datasets for future State Water Plan updates and subsequent implementation actions.

Describe the benefits to be derived from the successful completion of this objective: This will enable the Water Resources Division to successfully complete the State Water Plan and support it into the future. It will improve business process objectives by providing decision factors through timely retrieval of authoritative data. It will also position DNRC to pursue digital dissemination of quality controlled water related data through web sites and web mapping services to both inform the public and receive public feedback.

Describe the anticipated risks associated with this objective: Significant resource requirements for project completion could affect the timeliness or quality of the State Water Plan. Program training and acceptance to adjust workflows to new business processes. Digital data may not currently exist to support some of the stated objectives of the State Water Plan. **What is the timeframe for completion of this objective:** Initial release by end of calendar year 2014; ongoing thereafter.

Describe the critical success factors associated with this objective: Water Basin plans and associated cartographic products are delivered on time to meet objectives for publication prior to the legislative deadline. Public acceptance of the State Water Plan draft release.

Current Status: Completed development and implementation ongoing.

Supporting Objective/Action

Objective 5-7 Develop and utilize IT services that are integrated between DNRC (Water Rights Bureau, Water Adjudication Bureau) and the Judicial Branch (Water and District Courts) to provide better services to citizens and the agencies programs.

Describe the business requirements or business problem driving this objective:

5-7.1 Communication between information systems to adhere to standard based protocols to assist with compatibility across information systems.

5-7.2 Combine data and services into a single public interface to provide a comprehensive view of a water right or a water right application.

5-7.3 Share resources and services between stakeholders to reduce the cost of providing services to citizens and programs.

5-7.4 Design and architect procedures, processes and information systems so that data will be entered one time, but used by multiple programs to increase efficiency and improve data quality.

Describe the benefits to be derived from the successful completion of this objective:

Improved access to information used in decision-making within the agency and by the water courts. Improved access to information by citizens and businesses. Coordinate infrastructure development to foster cross-division/program collaboration and promote efficient development, use, and maintenance of technology resources. Deliver web and mobile access to DNRC services for citizens, businesses, and employees.

Describe the anticipated risks associated with this objective: Funding and staff time are limited for working on this endeavor. Business needs have significant differences between DNRC and the Water Courts.

What is the timeframe for completion of this objective: Dependent on funding and direction.

Describe the critical success factors associated with this objective: Effective collaboration on objectives, scope, and methodology between DNRC and the Water Courts. Ability [technically] to effectively integrate data from very complex systems. Funding for development of integrated systems and new user interfaces.

Goal Number 6:

IT Goal 6 Improve central applications for managing Contracts, Grants, Loans, Restoration Projects and other systems used to manage DNRC resources.

Description: Continue improvements to agency systems for tracking contracts, grants, loans, restoration projects, legal documents, computer inventory, and special projects.

Benefits: All divisions within DNRC will benefit from improved systems for tracking operational information within the agency.

Which agency IT strategies does your goal address? Consolidate data and systems resources and coordinate infrastructure development to foster cross-division/program collaboration and promote efficient development, use, and maintenance of technology resources. Develop systems that support program requirements across diverse geographic and operational environments. Leverage standards, technical innovations, and systems from other governmental entities and universities where appropriate. Utilize cloud, open source, and existing systems where possible; deploy custom built systems when necessary to meet specialized business requirements.

Supporting Objective/Action

Objective 6-1 Establish a program for tracking the state revolving fund.

Describe the business requirements or business problem driving this objective: Improved method for tracking the state revolving fund.

Describe the benefits to be derived from the successful completion of this objective: Better fiscal management of state resources. Reduced staff time for tracking the revolving fund and entering data from the funds into SABHRS.

Describe the anticipated risks associated with this objective: Time and staffing.

What is the timeframe for completion of this objective: FY2015/2016. This application will be developed with internal staff, dependent upon available resources.

Describe the critical success factors associated with this objective: Development of an application or methods to better manage revolving fund information.

Goal Number 7:

IT Goal 7 Enhance/Upgrade the Trust Lands Management System (TLMS).

Description: Develop business requirements and procure a modern solution to provide needed business management features to TLMS. Replace the legacy system with a secure, supportable financial and land tracking system.

Benefits: Improved management of state trust land assets, staff access to trust data, and customer access to trust land information. Less risk of financial loss and increased financial return through direct integration with spatial data to provide improved data management and decision-making capabilities.

Which agency IT strategies does your goal address? Consolidate data and systems resources and coordinate infrastructure development to foster cross-division/program collaboration and promote efficient development, use, and maintenance of technology resources. Expand use of geographic information technologies to improve situational awareness, analysis of complex data sets, and decision-making ability. Deliver web and mobile access to DNRC services for citizens, businesses, and employees. Develop systems that support program requirements across diverse geographic and operational environments. Leverage standards, technical innovations, and systems from other governmental entities and universities where appropriate. Utilize cloud, open source, and existing systems where possible; deploy custom built systems when necessary to meet specialized business requirements.

Supporting Objective/Action

Objective 7-1 New TLMS business management development.

Describe the business requirements or business problem driving this objective: Address new development to expand the capabilities of TLMS, such as enhancements to track lease stipulation monitoring, ability to upload photographs, and remote access.

Describe the benefits to be derived from the successful completion of this objective: Improved management of trust land assets and increased revenue generation for trust beneficiaries.

Describe the anticipated risks associated with this objective: Improvements may cause conflicts with current operations. Improvements may take longer than anticipated or may not meet all divisional goals.

What is the timeframe for completion of this objective: Ongoing.

Describe the critical success factors associated with this objective: Give division staff new tools to more effectively manage resources.

Supporting Objective/Action

Objective 7-2 Continue Integration of TLMS with Enterprise GIS.

Describe the business requirements or business problem driving this objective: Expand on the basic GIS ability that TLMS provides and allow external GIS applications to access basic information about leases stored in TLMS.

Describe the benefits to be derived from the successful completion of this objective: Improved management of trust land assets and increased revenue generation for trust beneficiaries. Decreased time and cost expended on maintenance of spatial data. Improved collaboration among staff.

Describe the anticipated risks associated with this objective: TLMS data is not currently spatially enabled. Implementation of Enterprise GIS capability may take longer than anticipated, or may not meet all division goals.

What is the timeframe for completion of this objective: Ongoing, depends on yet-to-be determined requirements.

Describe the critical success factors associated with this objective: Ability of division staff to efficiently access and utilize spatial land data.

Supporting Objective/Action

Objective 7-3 Enhance web access to TLMS data.

Describe the business requirements or business problem driving this objective: Much of the data in TLMS is useful to the public and potential lessees. Examples include potential oil and gas lease opportunities, land banking sales and associated documents, status of state trust lands, real estate management and agricultural leases. The objective is to make more data available to the public and improve the functionality of web access to the application.

Describe the benefits to be derived from the successful completion of this objective: Improved access for customers and public, improved functionality and navigation. Integration with the common look and feel of agency websites. Access to E-government services related to TLMS will be incorporated with the improved web access.

Describe the anticipated risks associated with this objective: The current web site is severely lacking in design and implementation. A complete rewrite of the website will be needed.

What is the timeframe for completion of this objective: TBD.

Describe the critical success factors associated with this objective: Customers and public able to interact with trust land programs and obtain data they need and desire.

Supporting Objective/Action

Objective 7-4 Trust Land document management and retrieval.

Describe the business requirements or business problem driving this objective: Critical land ownership, easement, leasing, and other documents need to be converted to digital format to make them available to agency staff and to ensure critical documents will not be lost through human error or deterioration of documents themselves.

Describe the benefits to be derived from the successful completion of this objective: Time and resource efficiencies. Availability and security of critical land ownership and related documents.

Describe the anticipated risks associated with this objective: Implementation may take longer than anticipated or may not meet division goals for access to equipment, capacity of equipment, and software to convert documents in a timely and cost-effective manner.

What is the timeframe for completion of this objective: Currently within the Trust Land Management Division, a number of legal documents are scanned for online access. These include granted and acquired easements and agricultural lease documents. The scanning is done without optical character recognition so no keyword searches are available. The objective is a standard document scanning and retention system with keyword or whole text search capabilities. This system will be part of the agency-wide document storage and management system identified in Goal 1. Development is dependent upon budget allocation.

Describe the critical success factors associated with this objective: Key documents readily accessible through TLMS, with all key documents converted to optical format and securely stored.

Goal Number 8:

IT Goal 8 Enhance a variety of applications in support of Trust Land Management Division.

Description: Update to critical applications within TLMD that support programs such as Ag and grazing, timber sales, timber management, minerals management, and real estate management.

Benefits: Improved management of state trust land assets, staff access to trust data, and customer access to trust land information.

Which agency IT strategies does your goal address? Consolidate data and systems resources and coordinate infrastructure development to foster cross-division/program collaboration and promote efficient development, use, and maintenance of technology resources. Expand use of geographic information technologies to improve situational awareness, analysis of complex data sets, and decision-making ability. Develop systems that support program requirements across diverse geographic and operational environments. Would be possibly folded into Goal 6 if a new comprehensive application solution were sought.

Supporting Objective/Action

Objective 8-1 Develop a geospatial land access database and public interface tool.

Describe the business requirements or business problem driving this objective: Identify and develop an application and supporting data to delineate access rights to state trust lands.

Describe the benefits to be derived from the successful completion of this objective: This system and database will help in developing cost-share/reciprocal road maintenance fees; improved management of timber sales, grazing rights, land inspections, and other agency operations and oversight; employees can use

this for determining legal access or planning staged acquisitions. The public can determine access for industry and/or recreational use.

Describe the anticipated risks associated with this objective: Staff availability. Must be compatible with agency GIS systems and TLMS. Potential confusion between physical access and legal access. Some parcels require extensive research at the local level for legal access determination. Liability to the state for improper depiction of access status.

What is the timeframe for completion of this objective: TBD – dependent upon TLMS development.

Describe the critical success factors associated with this objective: Funding; access to legal records at the county level; personnel availability for data development and application development.

Goal Number 9:

IT Goal 9 Update and improve applications critical to operations of Forestry Division.

Description: Continue work on applications that support the efforts of the Forestry division to fight fires, manage fire costs, safely deploy personnel, manage public and private timber lands, and operate the state nursery.

Benefits: Improved fiscal management of divisional operations. Integration of separate systems and availability of information within the division and across DNRC. Improved customer service.

Which agency IT strategies does your goal address? Consolidate data and systems resources and coordinate infrastructure development to foster cross-division/program collaboration and promote efficient development, use, and maintenance of technology resources. Expand use of geographic information technologies to improve situational awareness, analysis of complex data sets, and decision-making ability. Deliver web and mobile access to DNRC services for citizens, businesses, and employees. Develop systems that support program requirements across diverse geographic and operational environments. Leverage standards, technical innovations, and systems from other governmental entities and universities where appropriate. Utilize cloud, open source, and existing systems where possible; deploy custom built systems when necessary to meet specialized business requirements.

Supporting Objective/Action

Objective 9-1 Upgrade DNRC Aircraft Maintenance system.

Describe the business requirements or business problem driving this objective: DNRC's Aircraft Maintenance application tracks all maintenance and parts related to DNRC aircraft. The application presently consists of a central MS Access database with multiple MS Access frontends, all developed by the DNRC's Chief Mechanic of the Aviation Section. This is a very thorough, complete, and mission-critical database. Database synchronization is currently achieved via a 3rd party solution which no longer works very well and in the near future will not be supported on modern operating system platforms. Operational requirements for field maintenance require maintenance personnel to often work in remote areas, without reliable network connectivity. Federal Aviation Regulations require accurate, timely, and durable maintenance records. These business requirements necessitate system support for high availability, recoverability, and asynchronous database transaction management.

Describe the benefits to be derived from the successful completion of this objective: This is a mission-critical system required to support aircraft operations. Migration to an enterprise-class relational database system will ensure accuracy, consistency, durability, and recoverability of critical data while improving operational efficiency for maintenance personnel.

Describe the anticipated risks associated with this objective: Data loss or inconsistency, or impacts to system availability/stability during or after migration could severely impact mission-critical Aviation program operations. Network availability in remote areas.

What is the timeframe for completion of this objective: System planning to begin FY2015. **Describe the critical success factors associated with this objective:** Maintaining current user/business process functionality. Infrastructure and processes support system availability, data quality, and data recoverability requirements. Transaction auditing capabilities meet state, agency, and FAA standards.

Supporting Objective/Action

Objective 9-2 DNRC Fire Finance system.

Describe the business requirements or business problem driving this objective: Fire statistics from the F1000 fire database include costs per fire components that are currently input manually. This method is static and does not capture fire cost changes as they are updated. Fire Finance currently uses a Microsoft Access database with multiple tables that are linked to Excel pivot tables and are accessed by a single person. The Division would like the Finance system to utilize a SQL back-end that can export data when updated, to the F1000 Fire Reports system for the costs per fire. The system also needs an entry screen to enter non-SABHR expenses, i.e. bills from the Forest Service, BLM, and other agencies.

Describe the benefits to be derived from the successful completion of this objective: A unified system for fire finances would allow for better tracking of firefighting expenses, cost estimating for fires, reimbursement of costs from partner agencies and improved tracking of finances for auditing.

Describe the anticipated risks associated with this objective: Cost and time for development of a new system.

What is the timeframe for completion of this objective: FY2015/2016.

Describe the critical success factors associated with this objective: Establishing a unified financial system to better track the cost of fighting wildland fires.

Supporting Objective/Action

Objective 9-3 Enhance flight log system.

Describe the business requirements or business problem driving this objective: Compiling flight log information using paper forms is inefficient and time-consuming. An electronic system for entering and maintaining flight log information has dramatically improved flight operations. The system currently allows pilots to use laptops for secure, remote system access. Additional functional and infrastructure enhancements that could further increase the system's utility and reliability are being evaluated. For example, access via mobile devices such as tablets could potentially reduce pilot workload while increasing operational flexibility.

Describe the benefits to be derived from the successful completion of this objective: The flight log application and database provides timely statewide fire flight cost information to DNRC Forestry Division for submittal to the Office of Budget and Program Planning (OBPP). It has significantly improved operational efficiency and safety as well as improving the fire flight billing process, making it more efficient, faster, and cost-effective. Evaluation of the data compiled can also be used in the operations budgeting and planning process.

Describe the anticipated risks associated with this objective: Cost of external contractor. Data accuracy and consistency. Ensuring system availability during critical operational periods.

What is the timeframe for completion of this objective: Ongoing.

Describe the critical success factors associated with this objective: System supports stakeholder business requirements. Infrastructure and processes support system availability, data quality, and data recoverability requirements. Transaction auditing capabilities meet state, agency, and FAA standards.

Supporting Objective/Action

Objective 9-4 Provide the technical development of the Forests in Focus Program website and performance dashboard.

Describe the business requirements or business problem driving this objective: Develop the collaboration and partnerships to support the forest industry, private, public, and federal forest management, implement forest health initiatives and mitigate forest-related dangers to citizens and the environment.

Describe the benefits to be derived from the successful completion of this objective: Healthy forests for the welfare of all citizens; a thriving forest industry in Montana; mitigation of threats to life and property.

Describe the anticipated risks associated with this objective: Many partnerships under different government structures makes collaboration challenging. Ongoing funding and personnel to effectively manage program endeavors.

What is the timeframe for completion of this objective: Ongoing

Describe the critical success factors associated with this objective: Positive multi-partner relationships; strong leadership; definitive objectives for technical website and dashboard tools; personnel and resource availability.

Supporting Objective/Action

Objective 9-5 Enhance F300 and F1000 system to be integrated with the federal IRWIN system.

Describe the business requirements or business problem driving this objective: The Fire and Aviation Management Bureau needs to increase the scope of incident data tracked. This includes expanding the supplemental documents section to accept a wider range of document types and monitoring team involvement in fires by adding data fields to track incident commanders and incident types for each fire.

Describe the benefits to be derived from the successful completion of this objective: Ability to analyze incident related data such as type 1/type 2 team assignments, budget expenditures by IMT fire type, etc.

Describe the anticipated risks associated with this objective: Cost of external contractor. Data accuracy and consistency. Ensuring system availability during critical operational periods. Incorporation of additional data into business processes.

What is the timeframe for completion of this objective: Ongoing.

Describe the critical success factors associated with this objective: Infrastructure and processes support system availability, data quality, and data recoverability requirements. Enhancements meet business requirements. Documentation is updated to reflect system changes.

Supporting Objective/Action

Objective 9-6 Further develop integration of field data in fire management systems; specifically, implementing the DNRC Fire Map Tool and Avenza PDFMaps Application to produce effective Type 3-5 Incident Data in the field.

Describe the business requirements or business problem driving this objective: Need to address the requirements of FEMA requests; to support statewide coordination calls, briefings to the Governor and other similar efforts; and to enable strategic situation analysis during fire season.

Describe the benefits to be derived from the successful completion of this objective: Ultimately, would create the capacity to populate that DNRC Map Repository from the fire reports database. With the development of a map repository and GIS database, work to integrate mobile devices into daily fire operations and fire business functions including, not only users in the field, but those with strategic (non-field) responsibilities for sharing fire information.

Describe the anticipated risks associated with this objective: Ability to purchase additional mobile devices for the field. Funding constraints. Network limitations in field areas. Data synchronization, transaction management, and data collection procedures that ensure reported information is accurate, consistent, timely, and durable. State policies with respect to external access to systems located within the state network. Potential legal liability from implementation, data quality, or inadequate stakeholder training. Potential need for 24-hour/day, 7-day/week GIS support from the OIT.

What is the timeframe for completion of this objective: Ongoing.

Describe the critical success factors associated with this objective: Establish processes and mechanisms for returning collected field data to the GIS shop for inclusion in a DNRC Map Repository and DNRC GIS Database that will in-turn populate the PDF products, Avenza incident maps and other shareable data that both personnel and interagency personnel would use on mobile devices in the field.

Supporting Objective/Action

Objective 9-7 Update Forestry Assistance Bureau (FAB) – Statewide Assessment of Forest Resources computer model.

Describe the business requirements or business problem driving this objective: This is a mission critical computer model that drives the FAB financial assistance programs.

Describe the benefits to be derived from the successful completion of this objective: The original state assessment model was an ArcGIS/CommunityVis product completed in June 2010. The model was initiated to provide strategic direction to delivery of Cooperative Forestry Assistance Programs. These programs average $2-3 million per year in partnership with the US Forest Service. The model requires current datasets semi-annual maintenance.

Describe the anticipated risks associated with this objective: Lack of updates and maintenance will reduce model validity, potentially impacting DNRC credibility.

What is the timeframe for completion of this objective: Ongoing.

Describe the critical success factors associated with this objective: Updating all model data and providing seamless interface with the state's Forest Action Plan define critical success. The ability to provide strategic direction for program delivery on the ground equates to more efficient use of program resources and ultimately a more efficient use of tax dollars.

Goal Number 10:

IT Goal 10 Improve public access to Conservation and Resource Development Division (CARDD) program information.

Description: CARDD's primary function is to assist Montanans with their efforts to protect, conserve, manage and beneficially use Montana's natural resources. CARDD currently uses a web-based database for 3 grant programs, but needs additional web-based services to facilitate public access to DNRC information and assist staff with project management.

Benefits: CARDD will realize improved staff efficiencies, increased public use of natural resource management information, and improved access to DNRC grants.

Which agency IT strategies does your goal address? Expand use of geographic information technologies to improve situational awareness, analysis of complex data sets, and decision-making ability. Deliver web and mobile access to DNRC services for citizens, businesses, and employees. Develop systems that support program requirements across diverse geographic and operational environments. Leverage standards, technical innovations, and systems from other governmental entities and universities where appropriate. Share systems, components, and functionality across MT agencies, MT political subdivisions, and other states where common business requirements exist.

Supporting Objective/Action

Objective 10-1 Add programs to CARDD's on-line grants and application management WebGrants system.

Describe the business requirements or business problem driving this objective: CARDD has a specific need to track project applications, review and score applications, and manage active grant projects. The division has partnered with three other State agencies to develop a statewide grants management database called WebGrants, available at https://fundingmt.org/. CARDD has tested WebGrants for two years on three grant programs within the Renewable Resource Grants program. This system has increased efficiencies and provides a service to the public. CARDD plans to expand the system to include three more grant programs by the end of 2015.

Describe the benefits to be derived from the successful completion of this objective: Better management and tracking of contracts, grants, and loans made by the agency. Increased transparency and public access to information, reduced cost, and increased efficiency for application reviews. Ability to determine where state dollars are spent on projects, e.g. water loans, waste water treatment, restoration projects, etc.

Describe the anticipated risks associated with this objective: CARDD will need to provide updates at least annually and after each legislative session to maintain the accuracy of the database. As a system shared between the State of Montana and three other states, decisions regarding functionality or maintenance require cross-agency consensus.

What is the timeframe for completion of this objective: The system is in place. Plan to add three grant programs by end of FY2015.

Describe the critical success factors associated with this objective: The ability to connect to the DNRC CGS system for fiscal tracking is not necessary for success but would be a plus. Adding additional grant programs will require contracting IT consulting services and additional staff training.

Supporting Objective/Action

Objective 10-2 Develop an interactive map to track certain DNRC grants hosted at http://dnrc.mt.gov/public-interest/geographic-information-systems-gis/

Describe the business requirements or business problem driving this objective: CARDD has to provide the public, local governments, and the legislature with an easy way to view information about grants funded with

State funds. An interactive map would show location of CARDD funded grants with links to information such as: grant sponsor, project title, and project description or final report.

Describe the benefits to be derived from the successful completion of this objective: Public web-based access to this information will reduce workload for DNRC staff, enable the public and decision makers to view current expenditures by the program, encourage future applicants, and reduce the occurrence of duplicate or repeated projects.

Describe the anticipated risks associated with this objective: Maintaining an updated map. Requires support from limited internal IT resources.

What is the timeframe for completion of this objective: FY2017.

Describe the critical success factors associated with this objective: Consolidation and maintenance of updated grant information to a single web interface.

Supporting Objective/Action

Objective 10-3 Update the 310 database application to meet today's business needs and standards at http://dnrc.mt.gov/public-interest/geographic-information-systems-gis/

Describe the business requirements or business problem driving this objective: CARDD has a specific need to provide a web-based means for Conservation Districts (CD) and division staff to track 310 projects across the state. This database is already in place, but is in need of a complete overhaul of the application to improve usability and to meet current security standards. This database is map-based, allowing conservation districts to enter location of permits, permit information, and site photos. The public can access the database to view permitting activities on any streams in Montana where data has been entered. Because of the difficulty in entering and locating information, and security concerns, the database is currently not fully functional.

Describe the benefits to be derived from the successful completion of this objective: Improve access to the program by the public, improve CD's ability to manage the 310 program and determinations on future applications.

Describe the anticipated risks associated with this objective: The application needs to be substantially revised to meet security standards. The system was updated in FY 2014 with an interim fix to meet immediate security concerns. Project will require assistance from limited internal IT resources for development and maintenance.

What is the timeframe for completion of this objective: Revisions will occur in FY2015; maintenance will be ongoing.

Describe the critical success factors associated with this objective: Database is accessed by CDs when making determinations about 310 permits.

Supporting Objective/Action

Objective 10-4 Create access for conservation districts to view and print district boundary maps and to begin testing boundary data for accuracy (http://dnrc.mt.gov/public-interest/geographic-information-systems-gis/).

Describe the business requirements or business problem driving this objective: CARDD has a business need to allow conservation district use of an existing database that shows district boundaries. Conservation district boundaries can change and conservation districts need to be able to keep the district boundary maps up to date. The database is complete, but it is not accessible by the public or conservation districts. In addition, the data is not necessarily accurate, particularly boundary lines around cities and towns not within the

conservation district. Time needs to be dedicated to cleaning up inaccurate data by coordinating with cities and towns that have annexed land into the conservation district boundary and redraw the database lines to accurately reflect the city or town boundaries that are within the conservation district.

Describe the benefits to be derived from the successful completion of this objective: Accurate conservation district boundary maps assist DNRC and conservation districts with determining jurisdiction and location of rate-payers.

Describe the anticipated risks associated with this objective: Conservation districts and county assessors may rely on inaccurate information. Availability of limited internal IT resources.

What is the timeframe for completion of this objective: FY2017.

Describe the critical success factors associated with this objective: Conservation district access to the district boundaries and a mechanism in place to make changes requested by the conservation districts. Inaccurate data fixed, quality control mechanism in place.

Goal Number 11:

IT Goal 11 Improve applications critical to operations of the Board of Oil and Gas Conservation.

Description: Upgrade and enhance systems providing data services for internal and external stakeholders.

Benefits: Improved management of oil and gas resources. Enhanced ability for stakeholders to obtain information and interact with BOGC staff.

Which agency IT strategies does your goal address? Consolidate data and systems resources and coordinate infrastructure development to foster cross-division/program collaboration and promote efficient development, use, and maintenance of technology resources. Expand use of geographic information technologies to improve situational awareness, analysis of complex data sets, and decision-making ability. Deliver web and mobile access to DNRC services for citizens, businesses, and employees. Develop systems that support program requirements across diverse geographic and operational environments. Leverage standards, technical innovations, and systems from other governmental entities and universities where appropriate. Share systems, components, and functionality across MT agencies, MT political subdivisions, and other states where common business requirements exist. Utilize cloud, open source, and existing systems where possible; deploy custom built systems when necessary to meet specialized business requirements.

Supporting Objective/Action

Objective 11-1 Enhance BOGC systems through addition of new business features and streamlining back-end data processing.

Describe the business requirements or business problem driving this objective: Address new development to expand the capabilities of existing systems; address complex back-end data systems.

Describe the benefits to be derived from the successful completion of this objective: Improved access to information assets and management of resources. Increased efficiency and effectiveness of business operations.

Describe the anticipated risks associated with this objective: Improvements may cause conflicts with existing operations. Development may require more resources than available. Coordination between internal staff and external contractor.

What is the timeframe for completion of this objective: FY20/21.

Describe the critical success factors associated with this objective: Improved ability for internal and external stakeholders to access and maintain information assets.

This page intentionally left blank